

THE
ARCHITECT
& BUILDING NEWS

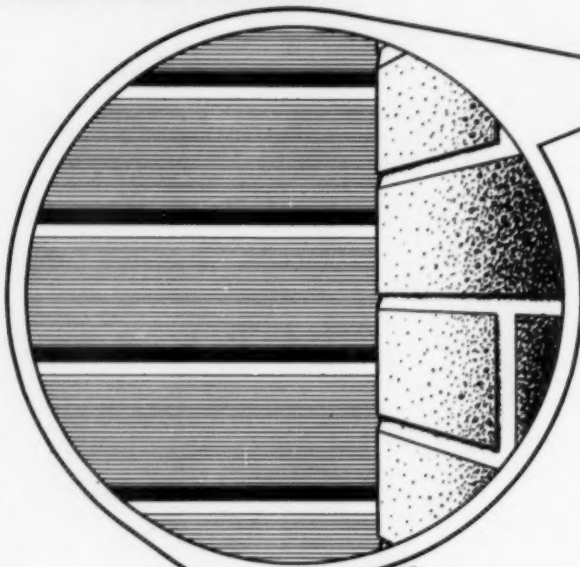
PUBLISHED IN LONDON SINCE 1854

15 JULY 1954 · VOL. 206 · NO. 3 · ONE SHILLING WEEKLY

- EXTENSIONS TO THE DEPARTMENT OF NATURAL
PHILOSOPHY, GLASGOW UNIVERSITY
- DE HAVILLAND OFFICES, HATFIELD

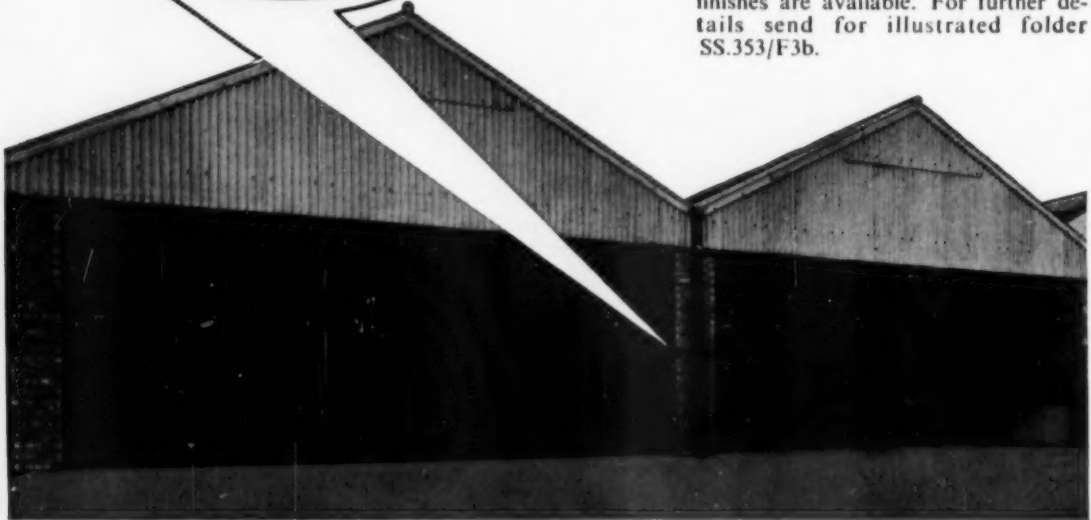
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*with the new
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and better looks*

Brady's new F3 rolling steel door is constructed of identical and interchangeable flat laths, which interlock throughout their length, and are more wind and weather tight. Rollers are of one diameter throughout their length and support the curtains through their full widths. Doors can be hand or electrically operated and standard finishes are available. For further details send for illustrated folder SS.353/F3b.



Two Brady F3 Flat Lath Rolling Doors, each 38 ft wide, installed on store sheds at Newcastle upon Tyne

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MANCHESTER 4

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| BIRMINGHAM | Rectory Park Road, Sheldon, 26 |
| CANADA | David C. Orrock & Co. (G. Brady & Co. Canada Ltd.) 1405 Bishop Street, Montreal 25, Que. and also at 23 Scott Street, Toronto, 1 |
| U.S.A. | G. Brady & Co. Ltd., 11 West 42nd St. New York 18, N.Y. |
| NORWAY | An Thorbjørnsen, Kongensgate, 14, Oslo And also at Cape Town |

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FRAMES

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Williams & Williams metal door frames.
Such a simple job—you build them
into any thickness of wall
as it goes up. Everything—hinges,
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permanent) door fit. So easy to
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Metal Windows. You can
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direct from us.

Williams and Williams Limited, Head Office: Reliance Works, Chester

A



"Expamet" Expanded Steel used as a reinforcement to the concrete roofing of the new Domestic Science wing of the Royal Masonic Institute for Girls, Rickmansworth.

ARCHITECTS: Messrs. Denman & Son, F/A.R.I.B.A., Brighton.

CONTRACTORS: E. S. Gates Ltd., Builders and Contractors.

'Expamet' Expanded Steel used in the reinforcement of the Royal Masonic Institute for Girls, Rickmansworth

HERE you see a typical application of "Expamet" Expanded Steel — as reinforcement for concrete. "Expamet" Expanded Steel is the unique reinforcement that affords the highest degree of grip and bond in concrete. The shape of the meshes also assists in "distribution" of point or concentrated loads, and in preventing cracking of concrete due to shrinkage and changes of temperature.

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This adaptable reinforcement is produced in a very large number of standard sectional areas; the weight of fabric

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We will gladly submit designs and estimates for the reinforcement of all forms of concrete construction. Let us know what applications for "Expamet" you have in mind. Literature and samples will be sent on application. Please write or telephone.

Super RIBMET

Super "Ribmet" is shuttering and reinforcement combined.



By its use the advantages of monolithic construction are obtained in the construction of concrete floors, roofs and similar decking, without the expenses of preparing, erecting and dismantling close boarded shuttering. Standard sizes are 3' 0" wide short way of mesh by 4' 0" to 15' 6" long inclusive, rising by 6" at a time.

Expamet

AN EXPANDED METAL PRODUCT

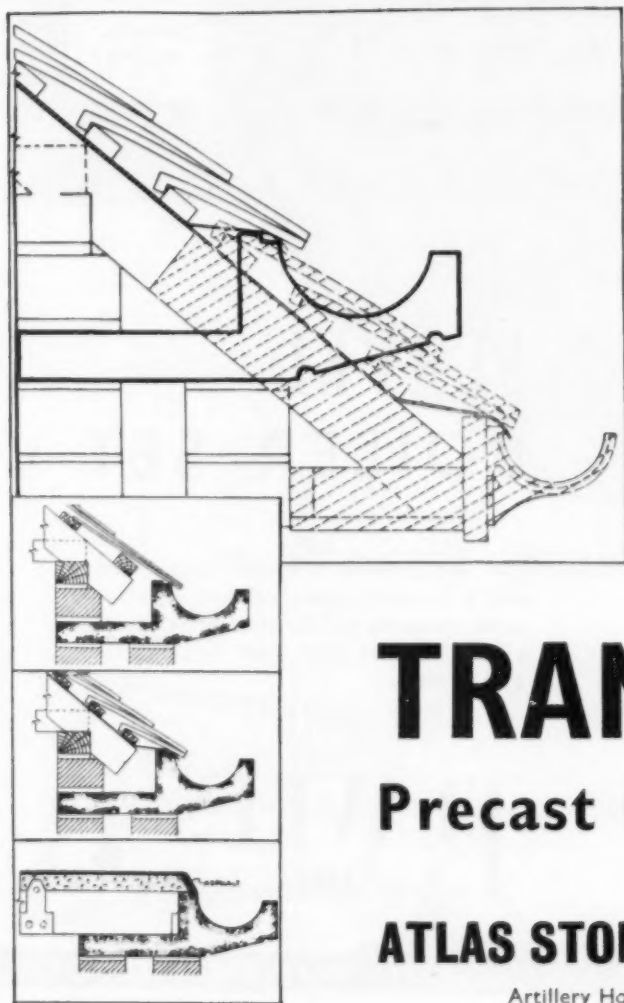
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The TRANSVERCO precast concrete gutter is a permanent, pleasing feature that effects a substantial saving on every house or building.

It is easily fixed and is lighter per foot run than any similar type of gutter.

The TRANSVERCO guttering is made from high grade, reinforced, waterproof concrete which requires no treatment or maintenance.

Stop-ends, outlets, angles and closers are available, and are included in the price per ft. run.

The diagrams on the left show :—

Top: Sectional view. The shaded portion shows saving over normal gutter.

Lower: Method of fitting Transverco guttering for slate, tile and flat roofs.

TRANSVERCO

Precast Concrete Gutter

Full details from

ATLAS STONE COMPANY LIMITED

Artillery House, Artillery Row, London, S.W.1.

FACTS and FIGURES

- ★ A standard Newbold grate with deepening bar, and gas burner for easy lighting. A safety plate can be provided as an extra. Standard boiler 12" x 6 $\frac{3}{4}$ " x 5" in C.I., Steel or Copper, tapped 1" B.S.P., reversible to permit R. or L.H. side connections.
Flue-way under boiler 2" high with 1 $\frac{1}{2}$ " vertical flue-way formed by boiler and steel casing.

- ★ Cover Plate. Removable for cleaning back flue and access to boiler manlid.

- ★ Damper. 4 $\frac{1}{2}$ " opening for chimney sweeping.

TYPICAL PERFORMANCE FIGURES WHEN BURNING COKE AS A FUEL

| | |
|--------------------|---|
| Capacity of Grate | 0.50 cu. ft. |
| Rate of Burning | 0.8—3.0 lb. per hr. |
| Radiant Output | Max., 8,000 BTU/hr. |
| Hot Water Output | Max., 14,000 BTU/hr. |
| Overall Efficiency | 51% with max. hot water. 46% with max. radiation |



the FLAVEL BOILER SET

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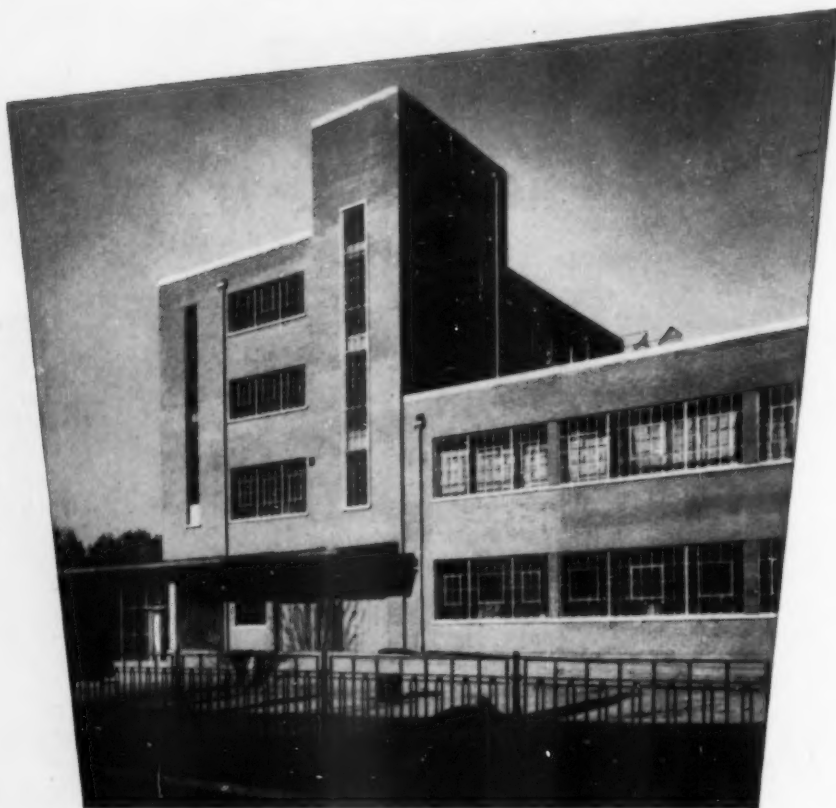
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C. Howard Crane & Partners.
GENERAL CONTRACTOR:
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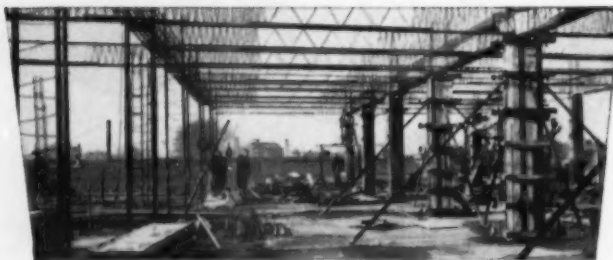
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A REAL TIME AND MONEY SAVER

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A copy of the FRAMEWELD handbook describing the system will be sent on request.



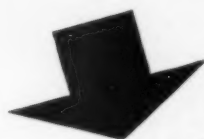
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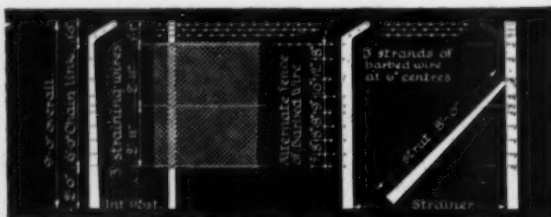
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| Angle Strainer (Ext.) .. | 6in. by 6in. by 9ft. 0in. | 338 lbs. |
| Angle Strainer (Int.) .. | 6in. by 6in. by 9ft. 0in. | 338 lbs. |
| Intermediate Strainer .. | 6in. by 6in. by 9ft. 0in. | 338 lbs. |
| Struts .. | 6in. by 3in. by 8ft. 0in. | 140 lbs. |

Straight posts are available from stock for 3'0", 3'6", 4'0", 4'6", 5'0" and 6'0" mesh. Also posts for wire fencing, guard tubes and rails, close and open boards, panels, etc. Please write or 'phone for particulars and prices.



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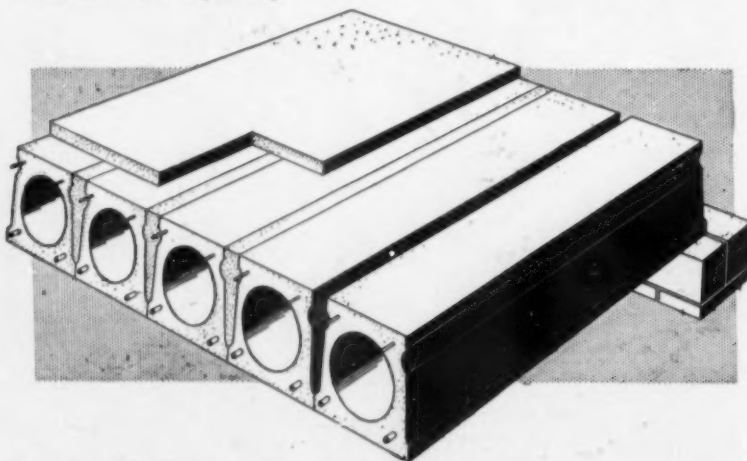
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For all normal spans and loadings.
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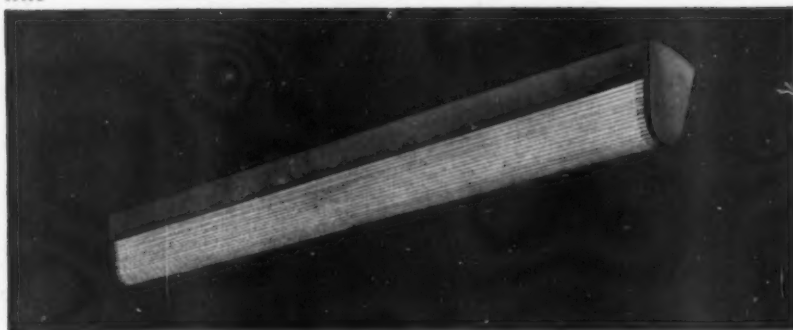
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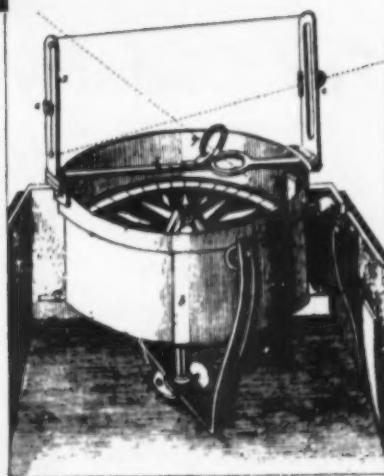


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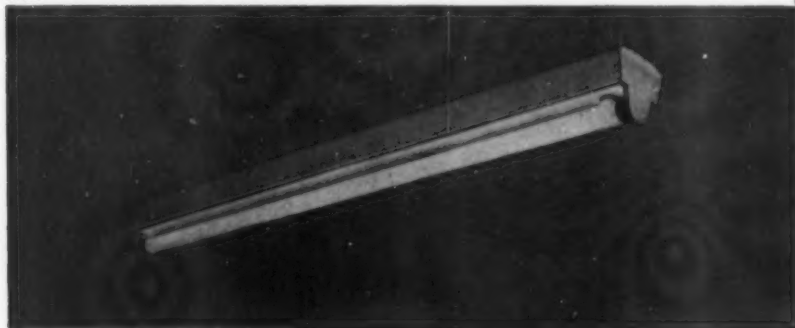
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DESIGN



T.417



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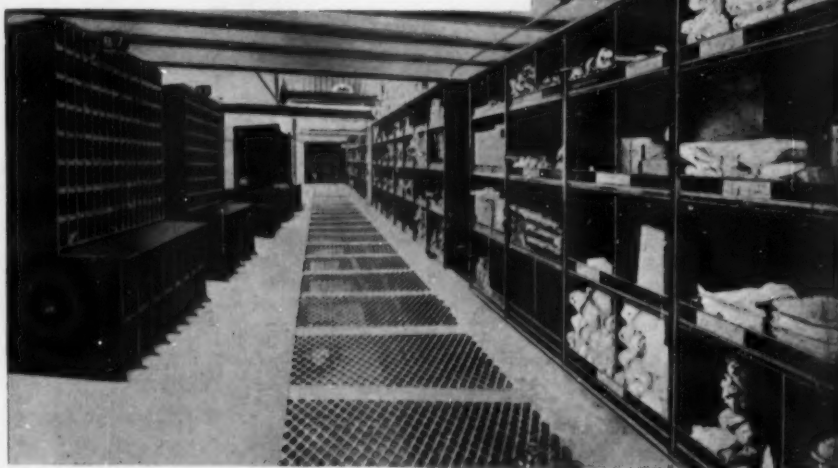
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Architects: James M. Munro & Son.

See article on pages 77-82

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"NAP"

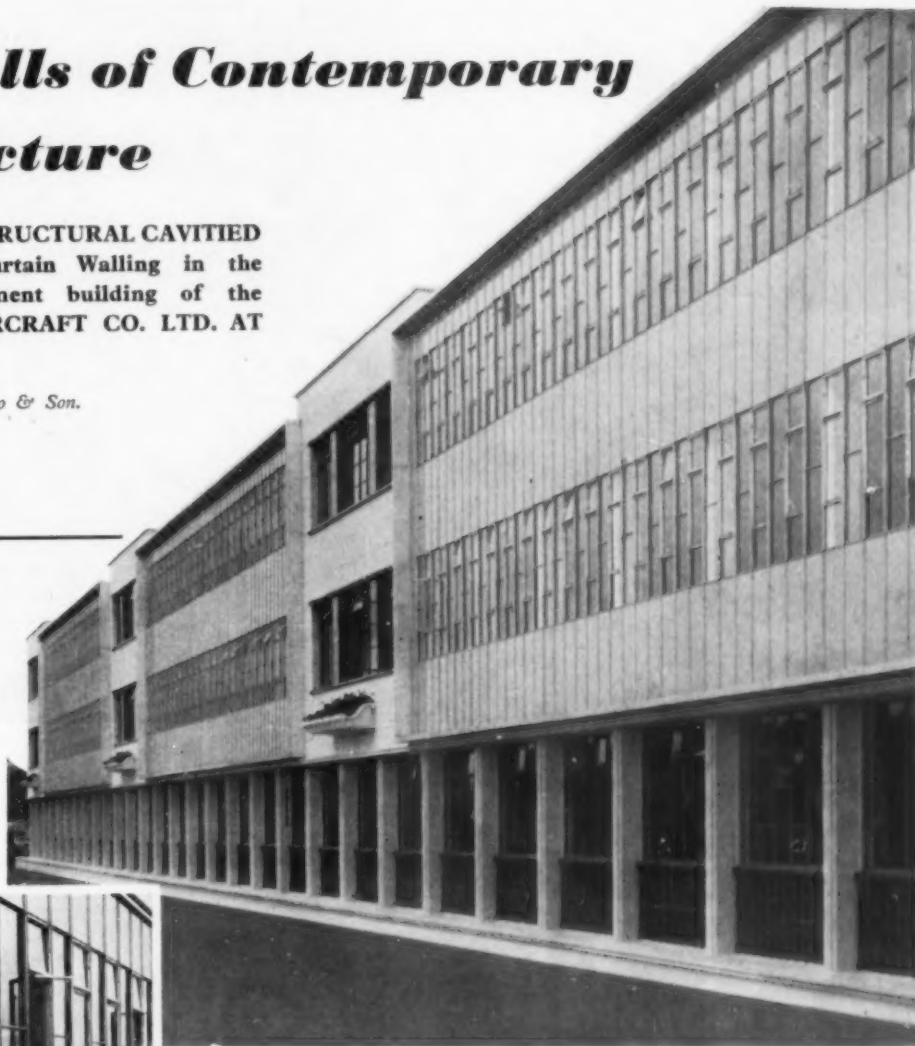
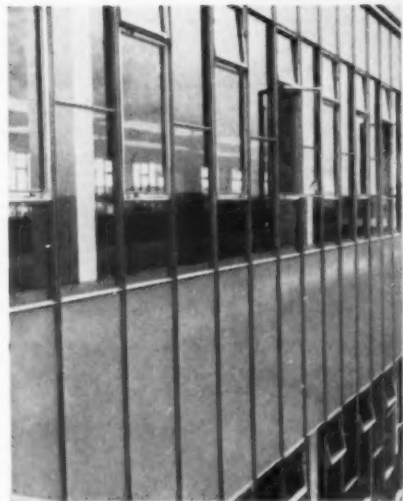
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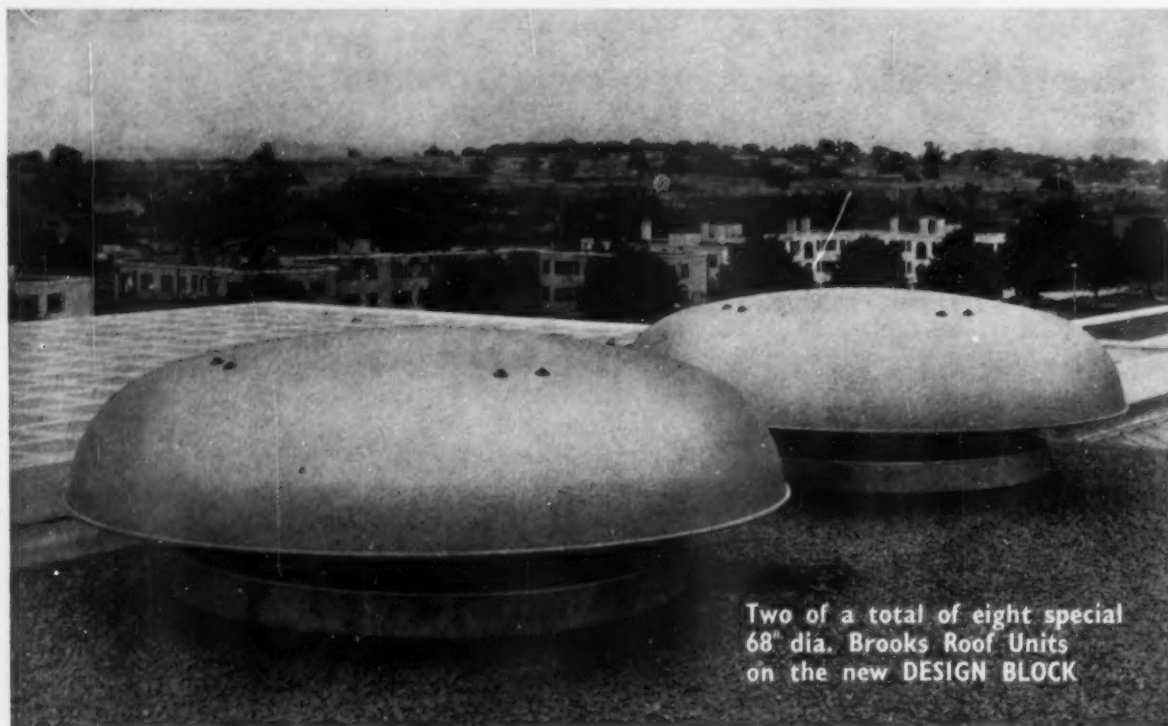
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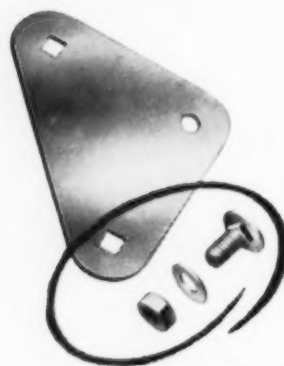
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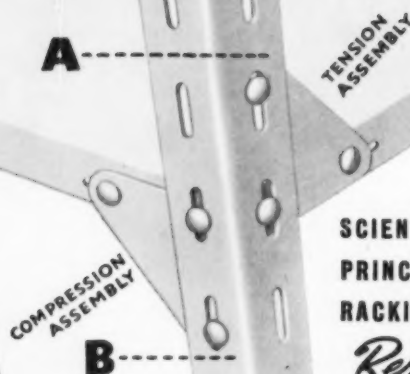
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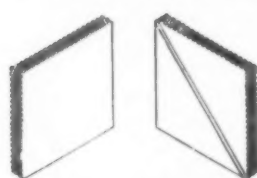
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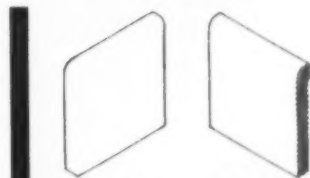
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THE ARCHITECT & BUILDING NEWS

15 July 1954

The "Architect and Building News" incorporates the "Architect," founded in 1869, and the "Building News," founded in 1854. The annual subscription, inland and overseas, is £2 15s. 0d. post paid: U.S.A. and Canada \$9.00

Published by ILIFFE & SONS LTD., DORSET HOUSE, STAMFORD STREET, LONDON, S.E.1
Telephone: WATERLOO 3333 (60 lines). Telegrams: "ARCHITONIA, SEDIST, LONDON."

Branch Offices: Coventry: 8-10 Corporation Street; Birmingham: King Edward House, New Street;
Manchester: 260 Deansgate. Tel: Blackfriars 4412 (3 lines), Deansgate 3595 (2 lines); Glasgow: 26B Renfield Street.

WORKING MORE EFFECTIVELY

THE theme of the recent conference and exhibition at Olympia sponsored by the Institution of Production Engineers was "Production for Plenty." Elsewhere in this issue we print part of a paper by Professor Mace, who dealt with the human factor in technological change. In considering higher production in the Building Industry this factor is of outstanding importance, and must receive equal attention with the mechanical and strictly organizationally aspects if the industry is to function smoothly.

Like Rudyard Kipling's soldier who was "the brutal and licentious soldiery" when he was not "good old Tommy Atkins," the building trade operative does not present a steady picture all the time. He can appear to be a lazy tea-swiller in some lights, while in others he is "a darned good fellow if you know how to handle him."

It has to be assumed that any generalizations about labour must include men who do not pull their weight or wish to, alongside those who maintain the traditional pride in workmanship that has produced the tremendous volume of sound and good building around us.

Recent times have seen a struggle on the part of labour to get more money. The masters have warned again and again of the risk of the industry being priced out of business. The next phase, therefore, must be an accelerated drive to increase productivity and wages, so that sufficient stability is reached for general comfort. What are then the views of the Trade Union leadership? In his presidential address to the Annual Conference of the N.F.B.T.O. at Rhyl last month, Mr. James Mills said: "Although building workers, in common with others, are compelled regularly to lodge claims for higher wages I wish it were unnecessary to do this. Experience has surely taught us that the attempt of wages to catch up with, let alone pass, prices is a futile task. I am sure I echo a widely held sentiment in saying that our Movement prefers lowering of

prices to a rise in wages. Of course there must be an occasional wage rise if the standard of living is to improve, but for the purpose of maintaining a standard rather than of altering it stabilization is a better means than the fruitless race between prices and wages, in which the latter invariably lose."

The Trade Union Attitude to Research and Productive Efficiency was dealt with in one of the papers at the Production Conference. The speaker, Mr. J. Crawford, who is Chairman of the T.U. Production Committee, said that we were all in the same boat. "The failure to solve the economic problems confronting us within terms of conciliation and arbitration between management and men will intensify our difficulties." He continued "Scientific and technical development is imperative to solve economic problems and to raise living standards, *but not at the expense of the human factor* otherwise the means gets mixed up with the end." Mr. Crawford said that new ideas were more easily embraced where management and labour have established the greatest degree of confidence in each other, and where each side has the respect for the interests of each other. He advocated the adoption of the idea that it was not by working harder but by working more effectively that production would benefit. It was his experience that, without preplanning, British workers often work harder than American workers at an average pace, although they do so in short spurts of activity to compensate for enforced idleness.

The very substantial change that has taken place in the attitude of Trade Unions to motion and method study has come to stay, but its encouragement is still essential. "The Trade Unions are preparing to play a stronger role in industry . . . this will result in a definite gain for industry and for the community."

Output last year in the industry was on the upgrade, and needs to be kept on a rising curve. It is essential that the intake of apprentices should

be boys of good type, and that those employers who do not cover their period of training with a proper agreement should be made to do so. Parents will naturally want to know what sort of industry it is that their boys are entering. They have a right to expect that it is not the industrial Cinderella, but one where skill is encouraged, well paid and that conditions of work are as humane as they can be made. If it becomes common knowledge that modern scientific and technical ideas are being introduced, but not at the expense of the worker, all will be well.

EVENTS AND COMMENTS

R.C.A. EXHIBITION

This year the annual exhibition of the Industrial Design departments of the Royal College of Art returns to the Western Galleries of the Imperial Institute. The exhibition contains some good and interesting things and the layout and display have been well thought out. The actual carrying out of the display work is, however, below the usual R.C.A. standard and gives the impression of a shortage of money—surely this cannot be so at the R.C.A.?—and insufficient attention to small details. The ends of things show and here and there are bits of unconnected wire, and so on. These may appear trivialities but we are constantly told that the R.C.A. is the best there is and it is only fair to point out when its standards fall short of the highest. If the R.C.A. cannot get it right, what chance have all the other schools?

I thought that the highlights this year were in the department of Silversmithing and Jewellery. In particular I would mention the range of jewellery of gold rolled leaves and pearls designed by Leslie Keene. Personally, I do not like large earrings, but for design and workmanship I thought that those designed by Nancy Hukin as a gold lattice ornamented with pearls and diamonds were exquisite. John Donald's delicate zig-zag tiara—or was it a collar?—was fit for the loveliest in the land and his charming and beautiful umbrellas, one with a golden open-work handle and another, shepherd's-crook-like, studded with tiny turquoises, would tempt the house-keeping money from even the most conscientious wife.

The ivory and gold gavel designed by Mohamed Yehia and presented to the Royal Society of Arts on the occasion of its bicentenary by the R.C.A. is also on view. This is beautiful, is of the very finest workmanship and would be surely so pleasant to handle that the chairman might never put it down.

Among the ceramics I liked very much the boat-shaped soup bowls of Richard Brockman and Walter Minkin. Apart from their colour and texture, these seemed to me to be excellent shapes for their purpose. Talking of shapes, the old festival lozenge dies hard and I saw a breadboard and a bread dish which followed it pretty closely. In a class by itself this, literally, is a very good-looking coffee percolator in green and white enamelled

metal by Adrian Binney. It has a silver top, is of excellent shape and is pleasant to handle. If it were put on the market at reasonable price, and I understand that it is designed for mass production, it could hardly fail to be a winner. Personally, I would want one rather larger than the model shown, but that is by the way.

In the textile exhibit there are a great many very good woven designs and I picked out one in striped greens and white by Margaret Woodmansey and a green chequered silk and blue silk covered with tiny silver crosses by Jennifer Galbraith. There seemed to be fewer printed materials this year but the standard was high. I am told that one of the reasons why the R.C.A. flowered prints are so good is that the students draw from the actual plant and not from plates. To provide a supply of plants, one end of the Western Galleries has been turned into a most lush conservatory.

I thought that the furniture shown was rather disappointing. Whereas the other departments whose work is on show appear to have become far surer of themselves, the furniture designers seem still to be groping. I wondered whether perhaps they were not looking too closely enough at the old masters. There seemed to be too much eagerness to do things differently where I would have preferred to see things done the same way only better. But I did like very much the storage units—Oh! beastly term!—designed by Mary Shand. A number of chairs are shown and surely the only way to appraise a chair after looking at it is to sit in it? These chairs are arranged on low platforms and while I was in the exhibition, two people accepted the implied invitation to sit on



Fifteen-storey block, the first of a programme for 1,000 flats for Algiers. It is designed on a 10ft 10in module. Architects: B. Zehruss and J. Sebag.

them. This was not a success as the platforms are, in fact, delicately balanced cantilevers. When I commented on the inappropriateness of this to one of the gowned goddesses of the place, I was almost asked to leave.

I have devoted a lot of space to this exhibition because it is an important one. The R.C.A. is our top school for industrial designers, and a great many of those whose work was shown will find their way into industry, where it is very much to be hoped they will be given a chance to develop and not become sales managers' hacks. The output of the R.C.A. is comparatively small and it must still be a long time before its products can influence our national standards of industrial design very greatly. Meanwhile, it is good to know that even a small flow of experts is beginning to enter the main stream.

MR. LEVITT HITS EUROPE

Mr. Levitt has made a name as the most progressive housebuilder in the States. He provides everything, even the name of the town. I am told that his houses are well designed and work very well. That is a great deal more that can be said for the average housebuilder's product here. Mr. Levitt's houses are in a rather different class from our "speculative" houses in that they cost about £5,000 a time. All the same it is news that Mr. Levitt has arrived in Europe with a trial house built at Bièvres, near Paris. An estate of 415 houses in ten different types is to be erected. The first is of open plan with two bedrooms and a bathroom on the ground floor, and another bedroom or studio with bathroom on the first floor. The house is fully insulated for heat and sound and there is an automatic oil-fired heating system. It would be interesting if Mr. Levitt came to this country. Our housebuilders could hardly have done less to put him off.

FRANKLY SPEAKING

Mr. Basil Spence was the victim in last week's edition of this B.B.C. programme. I thought that his personality came over very well indeed but that he was too often interrupted by questions from his interviewers, who hopped from subject to subject in a quite inconsequential way. I cannot understand why the B.B.C. considers it necessary to have three questioners. Surely one is enough. Sir Hugh Casson's questions all produced good answers and this is probably a pointer, for Casson knows Spence well and was therefore able to draw him out on things which he knew would be interesting. Just why Roger Bannister, the doctor-miler, should be considered suitable for this particular interview I cannot imagine.

One of Mr. Spence's confessions was that, like so many architects, he prefers to work at night. The Coventry Cathedral design was done entirely between 9 p.m. and 4.30 a.m. He considers that there is a vintage time for each person to work and his is between 10 p.m. and 2 a.m.

I am told, and this did not come out in the broadcast, that Mr. Spence has lectured on Coventry Cathedral well over 200 times, 90 times in Canada alone. This is an astonishing effort and a lesson to those of us who think we are getting tired when we have given our favourite lecture 20 times.

CUPS, SHIELDS AND MEDALS

This is the season of horse shows, sports meetings, rifle meetings, fêtes and galas of all kinds. Thousands of

first, second and third, ladies and gents, prizes are being distributed by wives of bishops, generals, and lords of the manor daily, and most of the cups, shields and medals concerned are of truly monstrous design. I know, not because I have ever won any, but because I have recently seen the illustrated catalogue of one of the leading manufacturers of such objects. Perhaps the R.C.A. and C.o.I.D. could look into it for it must be quite an industry.

A CIVIC HALL FOR YORK?

York Musical Society has decided to press for the provision of a civic hall. The largest hall at present available for the York Musical Festival holds only about 500 people and it is reckoned that international operatic stars can be overpowering in this sized room. The Society is confident that the stars could fill a much larger hall with sound, but judging from the year's results it seems doubtful whether the Society could fill the proposed hall with people. Some members of the Society called for the restoration of the York Festival Concert Rooms which originally seated 1,200 people; others thought that a new building should be constructed.

If it is decided to have a new hall I hope very much that it will be made the subject of a competition.

LONDON TREES

Many of you will have seen Peter Shephard's admirable article on Trees in Our Towns in the *Observer* recently. The danger to the great plane trees in our London Squares was never greater than at this moment. The underground car park promoters are on the march and before we know it is happening the trees will begin to come down. Then it will be too late to act. If you care for the trees and believe, as I do, that a few miserable underground car parks are going to make no difference at all to our street chaos, then write to your M.P. now, write to your local authority now, write to *The Times* now, borrow a soap-box and take it to Marble Arch now.

REGENCY EXHIBITION, 1954

Last summer I wrote with enthusiasm of my first visit to the Royal Pavilion at Brighton. The Regency Exhibition opens there to-day and, judging from the prospectus, is something not to be missed. For example, the Banqueting Room has been laid out as for a banquet of King George IV, with an especially magnificent group of gold plate lent by gracious permission of Her Majesty the Queen. The Great Kitchen has been completely restored with original fireplace and spits. The "Batterie de Cuisine," which once belonged to the Duke of Wellington, and consists of more than 550 pieces of copperware, will also be shown. Other rooms have been specially furnished, and some of the original pieces of furniture are on view, including some newly discovered "chinoiserie" furniture. I believe that some of the dismembered pieces of this particular set were found in the cellars of the Pavilion, while the key to their reassembly, a complete dressing-table, was found thickly brown painted in a junk shop in Brighton by a keen-eyed Director always on the look-out for such things. The exhibition is open from 10 to 8 daily, including Sundays, until October 3.

ABNER

NEWS OF THE WEEK

West Suffolk C.C. Awards

The awards for 1953 in the inaugural competition instigated by the West Suffolk County Council have been made by the Assessor, Mr. S. Rowland Pierce, R.S., V.P.R.I.B.A., Dist.T.P. They are given below together with the assessor's comments.

The Award in Class A (Residential Buildings) has been made to Messrs. Sandon and Harding A/A.R.I.B.A., Chartered Architects of Ipswich and to Mr. F. A. Valiant of Barrow, Nr. Bury St. Edmund's, Builder, for the design and erection of a bungalow-type house, "Newlands," at Fornham All Saints, Nr. Bury St. Edmund's.

This scheme stood out from many of the others submitted by reason of good placing upon a flat site, but one which was relieved by some fine trees and interesting background surroundings. The design of the house is excellent, inside and out, both from architectural and practical planning points of view. The detailing of almost every part indicates a thoughtful care which was only equalled by the quality of workmanship and finish by the building craftsmen. I was particularly impressed by the joinery and by the external rendering, the latter used as an interesting foil to good facing brickwork and recalling, in a subtle way, traditional Suffolk techniques.

The Award in Class B (Other Buildings, including Industrial and Commercial) has been made to Messrs. Hunt and Coates, Registered Architects of Bury St. Edmund's and to Mr. Harvey G. Frost of Bury St. Edmund's, Builder, for the excellent work in the Fishmonger's and Poulterer's Shop, Messrs. Whipps & Co., Ltd., Abbeygate Street, Bury St. Edmund's.

This scheme, although an alteration to an existing building, shows considerable feeling for orderly design, sympathetic to the surroundings and suitable for the purposes of the users, both shop-keepers and shoppers. The simple lines of the shopfront, well-detailed and well-spaced lettering can be added to the sensible use of well-chosen hygienic materials for the finishes of the internal and display spaces.

The honourable mentions are as follows:—

In Class A the first is to Mr. E. R. Collister, A.A.Dip., A.R.I.B.A., Chartered Architect of Cambridge and to Messrs. J. Edmondson & Sons, Builders of Newmarket, for the very well-designed and built bungalow in Regent Street, Newmarket.

In spite of the difficulties of a site where aspects were at war with the prospect and the enclosed wooded nature of the site, the placing of the building was successful.

The second honourable mention in Class A is to Mr. D. Wyn Roberts, A.R.I.B.A., Chartered Architect of Cambridge and to Messrs. Bright Bros., of Tuddenham, for a house, "Queens Hill," Worlington.

This is a well-sited building having the advantage of a partially pre-existing garden. The design is simple and excellently proportioned and shows considerable thought for minor details and the broad interplay of surfaces and external materials. While perhaps not so highly finished as the schemes already mentioned this house has very much to commend it architecturally.

In Class B I have not been able to award any honourable mentions. The entry was smaller and I must confess to a disappointment both at the numbers and with the average quality of the entries.

In summary, I would note that there were 19 eligible entries in Class A and five in Class B. I think this should be considered to be a very satisfactory result for the inaugural year of this award.

I hope I may be excused if I venture to add some notes on certain matters which came under observation during the tour of the county, and inspection of the buildings entered and of others seen at the same time. Such comments I am sure will be taken in the spirit in which they are offered—an attempt to help and to improve architecture and building in the county. They are, of course, not applicable to all the works seen nor are all the comments applicable to any one work. It is also recognized that austerities and costs may profoundly affect design and the choice of materials.

The local traditions and vernacular methods of design and construction are not always well understood; whether by reason of lack of knowledge or lack of observation is sometimes difficult to determine. The observing of good things in design does not preclude an up-to-date approach to architectural design or lead to the ignoring of functional and practical factors in building.

The past can teach us much to be avoided but it can contribute even more for emulation.

In particular I feel much greater attention could be paid to the selection of bricks and roofing materials; to the type of jointing in brickwork and to its colour; to the type of bond in brickwork best used for various purposes and varying positions in a building.

I would further suggest that extreme care is needed in the disposal of visible services affecting the external appearance of buildings, i.e., rain-water pipes, soil and ventilating pipes and wastes, electrical intakes and telephone lines and lastly, but not least to be considered, is the effect of the use of wireless and television aerials. Equal care is needed when determining the colour to be used in the finishes of the larger of such elements.

When a new building, its boundary walls or other ancillaries are in close proximity to other or older buildings (some of which may be of considerable merit) the design and the materials should receive the fullest study to avoid clashes of character, scale, colour and

even un-neighbourly rudeness of form and mass. It is only thus that the qualities and beauty of our countryside and of our historic towns can be preserved as a part of modern development and progress. A difficult site can often be assisted by good layout and design of buildings and, in alteration works, the reverse may also be true.

Lastly, the architect can assist greatly the community and his clients by advice, wherever possible, on the design and layout of gardens, fences, gates and similar features visible from public roads and open spaces; too often these final additions to a scheme are left to chance or otherwise insufficiently considered.

A good building is worthy of its setting and it should be respectful, even in the minor features of its setting, to others around it.

Grants to Historic Buildings

During the past three months, the Minister of Works, acting on recommendations by the Historic Buildings Councils for England, for Scotland, and for Wales, has offered 31 grants, totalling nearly £100,000, in respect of the following buildings:—

England: Denham Place, Buckinghamshire; Dorfold Hall, Cheshire; St. Peter's Vicarage, West Ham; Aubourn Hall, Lincolnshire; Dunsland House, Devon; Squerries Court, Kent; Naworth Castle, Cumberland; Old Mill Hotel, Salisbury, Wilts; Althorp House, Northamptonshire; Gayton Manor, Northamptonshire; Adlington Hall, Cheshire; Avington Park, Hampshire; Gosfield Hall, Essex; Taunton Castle, Somerset; No. 1 Myddylton Place, Saffron Walden, Essex; Chastleton House, Oxfordshire; The Prebends' Bridge, Durham; The Temple of the Four Winds, Castle Howard, Yorks; Mereworth Castle, Kent; St. Osyth's Priory, Essex.

Scotland: The Town House, Haddington, East Lothian; Balbithan House, Kintore, Aberdeenshire; Duncollie House, Oban; Houses on the approach to Stirling Castle, Stirling; Newliston, West Lothian; The Round Square, Gordonstoun; Pitheavlis Castle, Perth; Abertarff House, Church Street, Inverness; Dudhope Castle, Dundee; Mavisbank House, Polton, Midlothian.

Wales: St. James's House, Monmouth.

The grants are made under Part I of the Historic Building and Ancient Monuments Act, 1953, towards the cost of urgently needed repairs to buildings which are considered to be of outstanding historic or architectural interest.

One of these grants has been made for a scheme to bring an empty historic building into use. This building is Gosfield Hall, in Essex.

One of the conditions attached to the grants is that the public shall be given reasonable opportunities to see the historic buildings.

The Minister of Works announced the appointment of the Historic Buildings Councils for England and for

Wales on October 27, 1953; for Scotland on November 17, 1953. On March 25 of the present year the first grants were made public: 23 totalling nearly £50,000.

To date, nearly three hundred applications for aid have been received by the Historic Buildings Councils, for England, Scotland and Wales, of which about one-third have so far been rejected.

R.I.B.A. Ashpitel Prize, 1953

Mr. Derek Wellesley Bowes, A.R.I.B.A., of 1, Sydney Road, Richmond, Surrey, who passed the Final Examination in June, 1953, obtained the highest number of marks in the examinations held in 1953 and has, therefore, been awarded the Ashpitel Prize. Mr. Bowes is 25 years of age, received his architectural training at the Brixton School of Building, London.

PARTNERSHIPS

Mr. Herbert Thearle, B.Arch., F.R.I.B.A., has taken into partnership his brother Mr. Laurence Bennett Thearle, B.Arch., A.R.I.B.A. The practice in architecture will continue under the name of Herbert Thearle, Chartered Architects, from 66, Rodney Street, Liverpool, 1.

Denis Clarke Hall, F.R.I.B.A., has taken into partnership H. S. Scorer, A.R.I.B.A., for the purpose of opening a branch office in Lincoln, under the name of Clarke Hall and Scorer, F./A.R.I.B.A., 200, High Street, Lincoln (Telephone Lincoln 10734), where he will be pleased to receive trade catalogues, etc.

APPOINTMENTS

Mr. J. R. Firth, A.R.I.B.A., Architect, Public Works Department, has been appointed Chief Architect in the Works and Hydraulics Department, Trinidad. The appointment is on contract for three years in the first instance. Scale £1,200-£1,300 per annum.

Edinburgh Corporation has appointed as Assistant City Architect, Mr. Thomas Henry Corner, A.R.I.B.A., A.M.T.P.I. Mr. Corner, who was formerly Chief Architect to the City of Cambridge, will commence duty in Edinburgh on July 19, 1954.

EXHIBITIONS

Northern Polytechnic Department of Architecture, Surveying and Building

The Presentation of Diplomas by The President of the R.I.B.A., Mr. C. H. Aslin, C.B.E., will take place on July 20 at 6.30 p.m. An exhibition of the work of the schools of Architecture and Interior Decoration will be opened at 7.30 p.m. on that day and will remain open from 10 a.m. to 8 p.m., until July 21.

The R.I.B.A. Travelling Exhibition "Home and Surroundings" will be shown at Messrs. Jenner & Co., Princes Street, Edinburgh, from July 12 to July 24; East Kilbride, from July 27 to August 7; Messrs. A. W. White, 120 London Road, North End, Portsmouth, July 31 to August 7.

C O R R E S P O N D E N C E

Electrical Floor Warming

To the Editor of A. & B.N.

Sir,—The letter from Mr. J. S. A. Primrose, published in your issue of June 24, confuses boiler efficiency with system efficiency and provides further evidence to show that experience of heating methods generally is necessary for reliable judgment on the relative performance of different systems.

Electricity is expensive as a heating medium because nearly 80 per cent of the energy in the coal is dissipated in power station plant and transmission equipment. As a result, electrical heating systems (as distinct from occasional domestic electric fires) are invariably controlled by room thermostats, generally one in each room. Since such equipment saves costly electricity it soon pays for itself: it is a necessity rather than merely a good investment.

With central heating systems using relatively cheap fuel there is not such a strong case for extensive thermostatic control. This statement may seem strange with coal at its present price, but unfortunately the cost of thermostatic control equipment has risen with the cost of coal, and whilst expenditure on such controls and on thermal insulation can easily be justified as sound investment, architects and building owners often prefer to spend capital otherwise.

Mr. Primrose seems to suppose that only electric heating systems may be fitted with time switches and thermostats. I suggest that:

1. Such controls are vital on electrical installations and optional on others,
2. The use of such controls on boiler systems reduces fuel consumption just as much as, or more than, it does on electrical systems.
3. Mr. Primrose should learn a bit more about heating before repeating the wild claim of his last sentence.

Part of this sentence will bear quoting:

"... I respectfully suggest that the only accurate test of the actual load demand of a given building can be obtained electrically from the meter records of an efficient all-electric heating installation, operating under control of time switches and thermostats."

I have these comments:

- (a) An all-electric heating system with time controls and thermostats is not necessarily efficient.
- (b) It is well known that with constant loading electric heating and "on-off" control by room thermostats the occupants often open windows before the thermostats cut out, leaving in continuous operation heaters of several times the required mild-weather output. I have referred

to this in detail and *constructively* elsewhere*.

- (c) A recent innovation in the control of electric floor warming systems (but not new to boiler systems) is expected to secure a saving of over 30 per cent compared with present methods of control.

It is quaint that such an improvement is possible on an "efficient all-electric heating installation" already provided with thermostats and other controls.

Mr. Primrose states that "... it is absolutely impossible for an automatic stoker-fired coal plant, let alone a hand-fired coal plant, to follow with accuracy the hour to hour variations of the load demand arising from the normal heating installation." This is agreed, but at least the coal boiler will follow the hour to hour variations rather more accurately than an "off-peak" floor warming system that takes overnight the whole of the heat supply for uncontrolled release the next day!

Mr. Primrose would do well to turn his face rather than his back to the facts stated in my previous letter.

I am beginning to wonder if it can be deliberate policy rather than ignorance that causes electrical heating extremists to lump together a lot of things in the name of boiler efficiency with the implication that nothing can be done about it and that thermostatic and time-switch controls are for electrical heating systems only.

I am, etc.,
H. H. BRUCE.

Past President, Institution of Heating and Ventilating Engineers.

* Some Applications of Electricity to Space Heating. *Electrical Supervisor*, April, 1948. *Electrical Review*, May 14th, 1954, page 883.

I N P A R L I A M E N T

Byelaws Revision

The Minister of Housing and Local Government was asked by Brigadier Prior-Palmer when the model building byelaws were last revised and what were the principal changes made. Mr. Macmillan said that an authoritative and fully representative committee was appointed in June, 1951, to advise on the preparation of new model byelaws, in view of the great advances that had taken place in building methods and technical knowledge since 1939, which had made the existing byelaws out of date. As a result, a new series was published in Nov., 1952, and a further edition appeared in July, 1953. The main object of the new series had been to allow the utmost possible freedom in building methods and the use of new materials. This had been achieved by expressing the structural parts of the byelaws in terms of the functional requirements of the building without requiring any particular material to be used. Materials and methods of using them which con-

formed to British standards or codes of practice with sufficient compliance with the requirements of the bylaws. He also stated in another reply that of 1,336 local authorities whose building bylaws expired this year 1,328 had adopted new bylaws based on the model. The new bylaws were either already in force or would shortly be in force. (July 6.)

Conversions on Show

Mr. Ellis Smith asked the Minister of Housing and Local Government if he would arrange, in a number of large industrial cities or areas, similar exhibitions to the Oxford Street Exhibition of conversions and improvements of old houses. Mr. Macmillan said that he hoped it would be possible for examples to be shown in different parts of the country. There were difficulties about staging special exhibits like that at Oxford Street. What he had in mind were actual schemes that could be shown to the public for a time before being occupied. He hoped the local authorities would take the lead in promoting pilot schemes of this sort, and his regional officers were in touch with a number who were considering the matter. If it was desired to furnish the houses for inspection (as Mr. Ellis Smith had suggested) no doubt the local authorities could make suitable arrangements with local firms. (July 6.)

Rebuilding the City

Mr. F. Willey asked the Minister of Housing and Local Government what individual proposals affecting the rebuilding of the City of London had been the subject of consultation with him under the arrangements instituted earlier this year, and with what effect. Mr. Macmillan said there were none. The arrangements referred to were for consultation between the City Corporation and the London County Council, and for collaboration as necessary with the Royal Fine Art Commission. Normally he would not expect to become involved unless there were difficulties leading to an appeal by the developer. (July 6.)

Factories in Greater London

Mr. Henry Strauss, Parliamentary Secretary to the Board of Trade, informed Mr. Steele that between January 1, 1945 and May 31, 1954, there had been 219 new factories, with a floor space of 3,990,000 sq. ft. built in the Greater London area, and 854 extensions with a total floor space of 14,870,000 sq. ft. The figures of both new factories and extensions referred to schemes with an area of 5,000 sq. ft. and over. The figures for new factories referred to detached buildings on new sites; replacements on the same sites or factory buildings which had been demolished or destroyed, were excluded. "Greater London" had been taken as approximately the area of the Greater London Plan. It included the new towns of Basildon, Harlow, Hatfield, Hemel Hempstead, Welwyn, and Stevenage, but not Bracknell or Crawley. (July 6.)

Housing Site Costs

The Minister of Housing and Local Government was asked by Mrs. Jeger in what areas and at what price he regarded land in residential zones of Central London as too expensive for local authority housing when deciding whether to approve compulsory purchase orders and other transactions; whether he was aware that much of this land remained derelict and undeveloped. Mr. Macmillan stated that the price he thought it reasonable for a housing authority to pay for land must depend on the circumstances, and he could only decide this on each case. He was, of course, aware that there was derelict land in Central London in areas which it was proposed should be primarily residential, but he expected to see a great deal of this developed in the next few years in accordance with the County of London Development Plan. (July 6.)

Cement

Sir Robert Boothby asked the Minister of Works to what extent increased supplies of cement were being made available for export, and whether he would prevent the export of cement until the shortage of home supplies had been overcome. Sir David Eccles stated that cement exports since January were 75,000 tons less than in the corresponding period last year. The increase in supply was all going into the home market, and he was in close touch with the industry about the needs of all parts of the United Kingdom. (July 6.)

Mutilated Trees

Mr. John Eden asked if the Minister of Housing and Local Government would draw the attention of local authorities to the report of the Royal Fine Art Commission (Cmd. Paper 9177), with special reference to the Commission's protest against the continued mutilation by many local authorities of roadside trees and those in public open spaces. Mr. Macmillan replied that he thought it probable that many local authorities would already have observed this passage in the commission's report, and Mr. Eden's question would draw the attention of others. But he was considering whether there was anything he could do to promote better understanding of the right treatment of trees. (July 6.)

Relative Earnings

The Minister of Labour stated in giving some comparative figures of wage rates, that the average of time rates in the principal districts of the United Kingdom for bricklayers was 73s 4d a week in September, 1939, and 168s to-day, and for building trade labourers 55s 1d and 147s 4d. The average weekly earnings at these two dates of all adult male wage-earners in building and contracting were 66s and 183s 8d. He pointed out that in the building industry agreements specified only hourly rates, and the weekly rates

had been computed by multiplying the hourly rates (the average of recognized rates in 39 large towns) by the average number of hours in a full ordinary week, summer and winter hours being taken into account. (July 8.)

Production Exhibition Conference, Olympia

This new exhibition under the patronage of the Duke of Edinburgh is presided over this time by Sir Walter Puckey, who is President of the Institution of Production Engineers. The Exhibition was opened by Sir Walter Monckton, Minister of Labour. Organized by Andry Montgomery, Ltd., the accent was placed fairly equally upon those who had something to offer on the subject of production and those who were simply selling something that might or might not be used efficiently.

Of interest in the exhibition itself was the Ministry of Works stand which showed models, large-scale photographs and architect's working drawings of new buildings. Their purpose was to emphasize how the production of a building—and hence of the business of the occupiers—can be speeded at the design and planning stage; how the client can contribute to "Production" by giving his consultants finalized details of his requirements at an early stage.

Models were shown of a large new Crown Office building, a hospital (in section), a factory with planned layout, a combined sorting office and post office, and offices for the Telephone Manager's department of Regional Communications Area. Other Government projects were illustrated by photographs and working drawings at various stages.

The model that attracted the most interest was one of some new Government offices that are to be built in Birmingham in order to release the site of the present temporary offices for housing purposes. The building is still the subject of consultation over details with the planning authority of the City of Birmingham. The first section to be completed by the end of 1957 will accommodate a staff of 1,000.

The building has been planned to give the maximum amount of unrestricted natural light, whilst preserving the angle of light to surrounding properties. The day lighting code recommended by the Ministry of Housing and Local Government has been used in deciding these light angles. A study is being made of as many methods of prefabrication as possible in the construction of the building and it is hoped to prefabricate the frame, the external wall panels including the window units, staircase flights and landings, built-in heating panels, plumbing sets and partition walls. Examination is being made of smokeless fuels in order to meet the requirements of the City Authorities, who are endeavouring to create a smokeless zone.

James Gibbs

1682-1754

THE more important of this year's two architectural bicentenaries falls on August 5. For on that day in 1754, two and a half months after the elder Wood of Bath's death at the age of 49, the septuagenarian James Gibbs died at his home on the Cavendish-Harley estate in Marylebone, whose early development he had supervised. In the course of a long and prosperous career he had been the designer of, among other works, St. Mary le Strand, St. Martin in the Fields, the new buildings of Bart's Hospital, Derby Cathedral, the Senate House at Cambridge, and the Radcliffe Library at Oxford. Even if his buildings had not been of such great merit the mere fact of their present-day fame would automatically place him among our most notable architects. But in any case, by virtue of his great talents and professional skill, James Gibbs is in his own right an outstanding figure.

He was, of course, far less of an innovator than Inigo Jones, and in no way so towering a genius as his friend Sir Christopher Wren. His intellect seems to have been less bold than that of Vanbrugh or Hawksmoor. Yet Gibbs stands clearly apart, as an individual genius and as an artist whose politics separated him from the Burlingtonians, from the general run of his "Palladian" contemporaries. His visit to Italy, with a period perhaps as long as three years spent in the office of the leading Rome architect Carlo Fontana, had made him more thoroughly familiar than most English architects with late Renaissance, Baroque, and immediately post-Baroque Italian architecture. He was also personally familiar with buildings in many other parts of the Continent, in this respect greatly surpassing Wren, whose travels abroad had been confined to a few months in Paris. He brought to his work a Scottish determination and thoroughness which made it possible for him to build up a tremendous store of knowledge, and which was also seen in his great professional competence and in his hatred, in the contractors who worked under him, of the slipshod and second-rate. He became particularly important and influential by reason of his two publications, the "Book of Architecture" (1728) and "Rules for Drawing" (1732). These were not merely his architectural testament and a



"It is true that St. Martin's steeple combines a little unhappily with its portico, but both features individually are of the highest quality"

good source of revenue. They were early, and excellent pioneers in a great corpus of patrons' and contractors' pattern books which made possible the diffusion, both in Britain and in her colonies, of the standards of taste and of the architectural technique being brought to perfection by the group of Georgian designers whose headquarters, inevitably in view of contemporary transport facilities, was London. In particular, the "Book of Architecture" was a splendidly produced work of its kind, and a book whose influence on other English architects, and also on those at work in colonial and early federal America, makes Gibbs of very great significance as a disseminator of English classicism.

Gibbs had not intended, when he first went to Italy from his native city of Aberdeen, to study architecture. Eventually, however, as a result of his varied observations, he gained a profound and expert knowledge, possessed in so complete a degree by no other British architect of his time, of the buildings being erected in Rome just after 1700, or else completed in the century and a quarter before his arrival. To some extent he was an eclectic, well content to borrow idioms and details both from the late sixteenth-century Renaissance designers and from such *seicento* masters as Borromini. Of special importance was his period, along with other trainee architects, under Carlo Fontana (1638-1714)

who was then, professionally speaking, at the acknowledged top of the Roman architectural tree. No other English architect under Queen Anne or the early Georges could lay claim to anything so substantial as the experience of Gibbs in the actual office of an Italian architect who was steeped in the late Baroque tradition (with special reference to Pietro da Cortona and Bernini), but who came late enough in point of time to be a pioneer of the simpler, neo-academic phase which held sway in Rome during the early decades of the eighteenth century. This knowledge, gained in a country where architectural professionalism, and architectural training, were ahead of the standards by that time reached in this country, is more apparent in his decorative details and church memorials (whether on paper or in plaster and marble) than in his actual buildings. But it does appear, in marked degree, in St. Mary le Strand, which is the earliest, and to my mind the most architecturally interesting, of his completed buildings. Nor was Gibbs' admiration of Italy (and especially of Rome) confined to buildings of brick or stone. He became notably, though not exclusively, important in England as the employer of Artari and Bagutti, the brilliant pair of Italian *stuccatori* who worked for him on the ceiling of St. Martin's, in the Orleans Octagon at Twickenham, and on other jobs.

His opportunities, whether in London or outside it, Gibbs owed in decisive measure to his patronage by the Harleys, coming initially from Robert Harley, the first Earl of Oxford, and then, in a much more marked degree, from Edward Harley, who, in 1724, succeeded his father in the title. These were the two noblemen who opened to Gibbs the fields of Tory patronage which compensated him for political disfavour under the Hanoverians and after the failure of the Jacobite rising of 1715. During his career, Gibbs must have known the other architects of his time, but artistically and in politics he stood apart from them. Although he had to accommodate himself in large measure to "Palladianism," he cannot be reckoned as a "Palladian" in the same way as one can apply that title to Campbell, Kent, Leoni, and the other architects who were more or less of the Burlington *coterie*. He was also, despite the genuine knowledge, enthusiasm and competence of his contemporaries, ahead of them in sheer professional expertise, and in his Italian training, which had been more academic, and at the same time on more professional lines, than that

possessed by the surveyor-mason-carpenter type of architect like Ripley or the elder Wood of Bath. Good draughtsmanship was common enough in England by Gibbs' time, but his own drawings, with their firm delineation and their use of grey and pink wash, are outstanding even by the standards of the period, and the highest praise may fitly go to the production quality of the "Book of Architecture," "Rules for Drawing" and *Bibliotheca Radcliviana*. One may also remark, when one studies the great number of his drawings which have survived, on his enormous industry and prodigality of design. Here in these drawings, as well as in the considerable volume of his executed work, it is easy to see how thoroughly Gibbs absorbed the lessons of his few years in Italy.

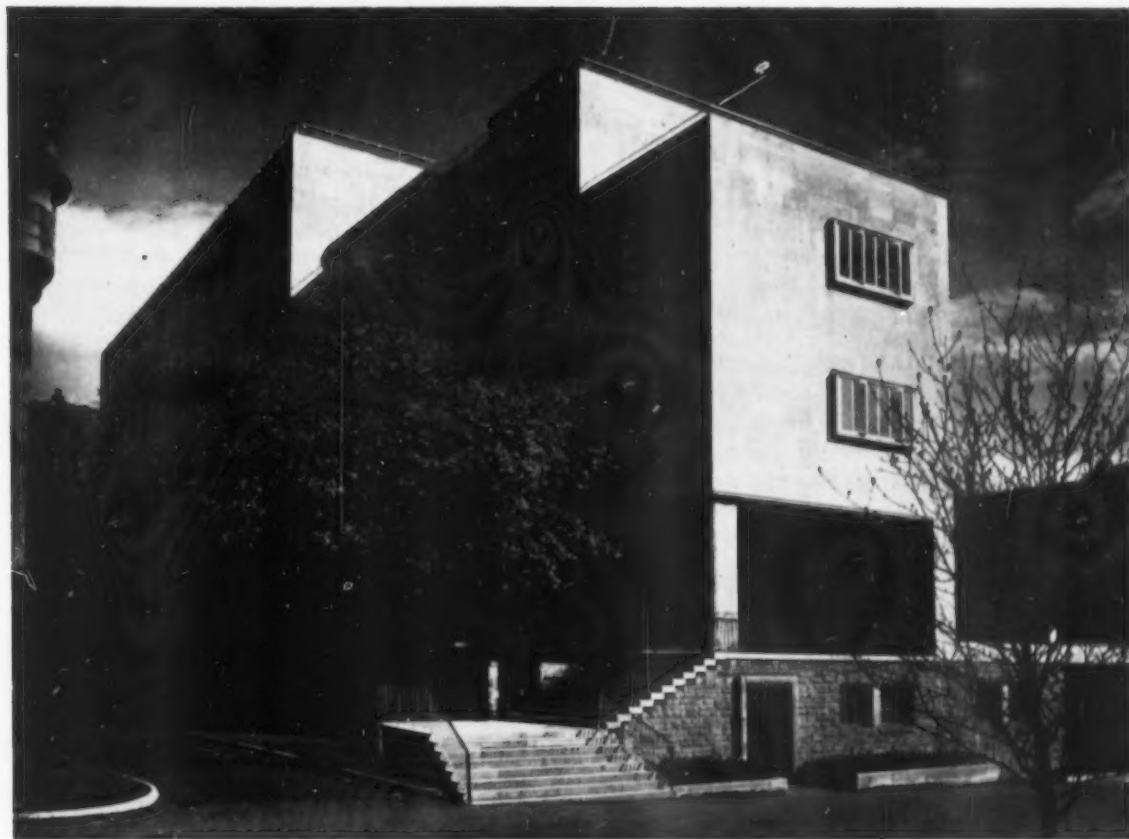
James Gibbs may, therefore, be reckoned as an architect of very great talent, of much thoroughness, industry and conscientiousness, and as a man whose purely architectural competence made him something of a landmark in his profession. His Roman experience he could not apply so far-reachingly as he, with his Catholicism and with his politics inconveniently anti Tory-Jacobite, would have wished; it is important, in the record of his life, that he was politically ineligible, from 1714 and particularly after the '15, for the posts available in the Office of Works or for most of the country house patronage likely to come from the Whig magnates who held power. His position, reckoned from the careerist standpoint, was that of a brilliant individual whose excellence as an architect was such that he actually obtained commissions (notably that for the building of a new St. Martin's) from patrons outside his own political circle. In a special degree, and not only in matters of style or in his adding the upper stages to the tower of St. Clement Danes, he ranks as a "continuator" of Wren. Like Wren, but in an even more systematic and "standard" way, he showed, in St. Martin's, St. Peter's, Vere Street and at Derby, how completely classical styles could be applied to basic designs intended from the beginning for Anglican and not for pre-Reformation worship. His development of the steeple tradition, better shown in many unexecuted drawings than in his three completed examples, was something derived from Wren and not from Rome, though Gibbs' detail as applied to his three London steeples is that which he must have learnt from his careful Roman studies.

Gibbs was also Wren's legatee in

some more purely technical matters. Like Wren, he was a splendid draughtsman and a devoted admirer of Portland stone. Wherever he could do so he insisted on Portland stone, and his preference is triumphantly justified in St. Martin's and in the Cambridge Senate House. He made great use of the excellent master mason Christopher Cass, who had worked for Wren, and it is often noticeable that he took much trouble over being sure, in the manner of Wren, of having at his command the best possible team of joiners, carpenters, plasterworkers, smiths, and the like. His buildings are, therefore, works of high technical quality; in James Gibbs we are in the presence both of a supervisor who would tolerate none but the best and of a designer who in supreme measure, and more than his contemporaries, "knew his stuff" at a time when his profession was still evolving.

In the end, however, I like to think of James Gibbs, this Aberdonian who found his way south and there in England made a successful career as an artist whom we have to thank for many buildings both famous and of great beauty. The Orleans Octagon is surely one of the loveliest interiors in England, and the Newcastle monument in Westminster Abbey surpasses all our Georgian memorials in its sheer magnificence. It is true that St. Martin's steeple combines a little unhappily with its portico, but both features individually are of the highest quality, and the steeple, as one sees it from across Trafalgar Square or, better still, from up St. Martin's Lane, is of a lyrical quality in no way below Wren at his best. However much the conception of the Cambridge Senate House may owe to Burrough, one feels that its grace and delicacy are all Gibbs. Oxford has been called the City of Dreaming Spires (one presumes with perpendicular towers thrown in), but Gibbs' Radcliffe Dome is a triumphant affirmation, in a mainly Gothic skyline, of Renaissance values. It is significant of a changed, non-Ruskinian aesthetic outlook that picture books on Oxford are nowadays apt to have the Radcliffe Dome, and not Magdalen Tower, or even Tom Tower, as the principal feature of their dust-jackets. It is hard, and in any event utterly undesirable, to escape from the visible legacy of James Gibbs. And if buildings pall, or if one is far from his buildings, one always has, in any really good library, his most splendid monument in the "Book of Architecture."

BRYAN LITTLE

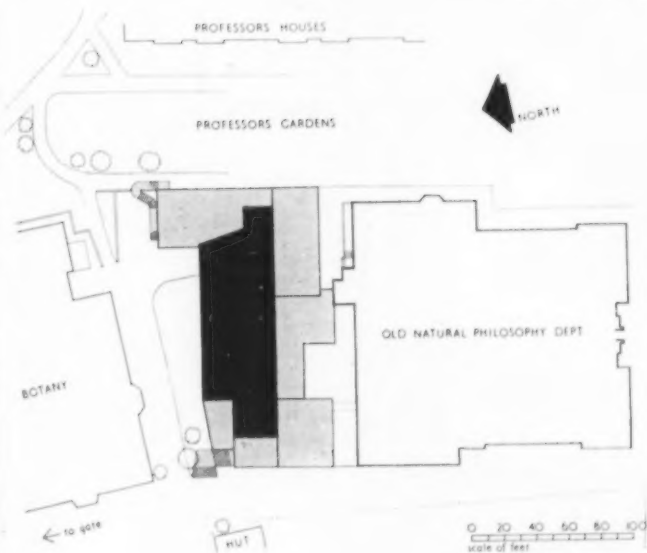


Showing the main entrance at the West end of the building.

EXTENSIONS TO THE DEPARTMENT OF NATURAL PHILOSOPHY.

Glasgow University

architects: BASIL SPENCE & PARTNERS



BLOCK PLAN

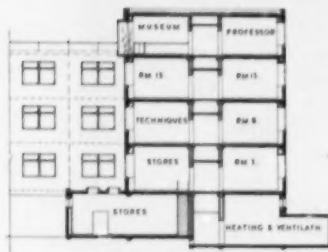
THIS new extension to the Department of Natural Philosophy, Glasgow University, was commissioned in 1947 to house a 300,000,000 volt Synchrotron then in course of design, and to provide accommodation for Nuclear Research in connection with it, as well as for the general teaching of Nuclear Physics. The whole was to be associated with the original Natural Philosophy Building in the middle of the University.

The only available site was a restricted one on a terraced slope used as a tennis court. It was bounded on the East side by Professors' houses and gardens, on the North by the Botany Department and on the South by the existing Natural Philosophy Department; the only real access was at the bottom of the slope on the West side. The new building contains the Synchrotron with ancillaries, i.e. Switch Rooms, Condenser Room, Control Room, Beam Research Room, Pump and Ventilation Rooms, Splitters, Synchrotron Hall and Workshops. All this had to have special provision made to give protection both inside and out from radiation, noise and

(Continued on page 71)

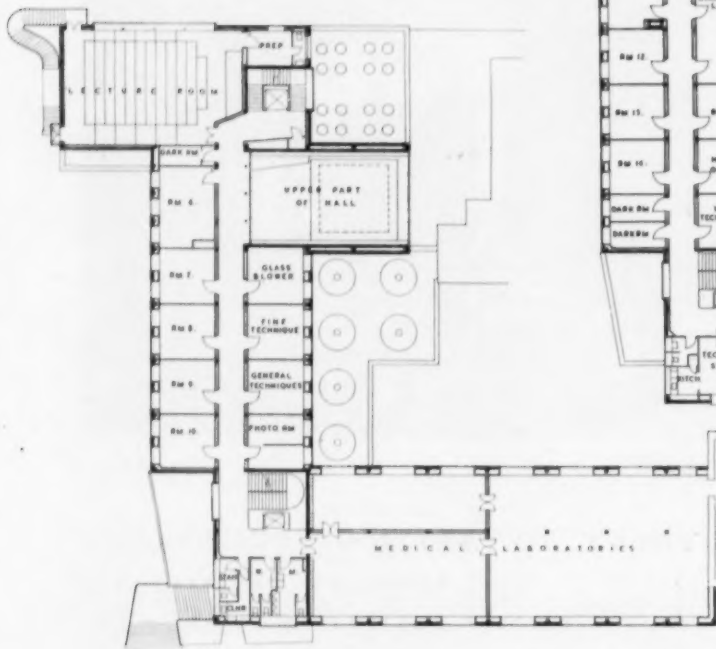
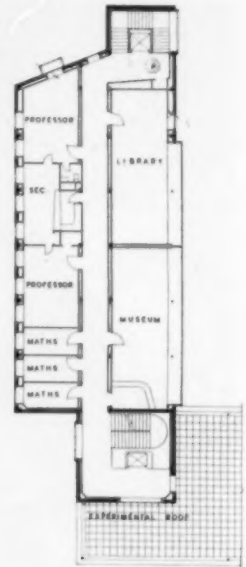
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Department of Natural Philosophy

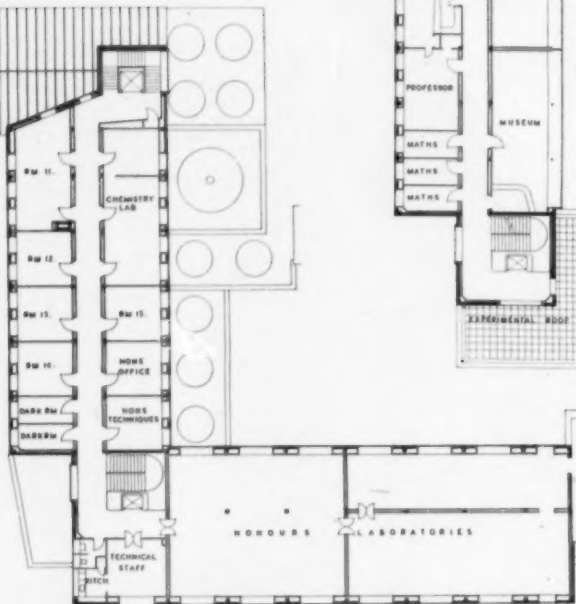


CROSS SECTION B-B

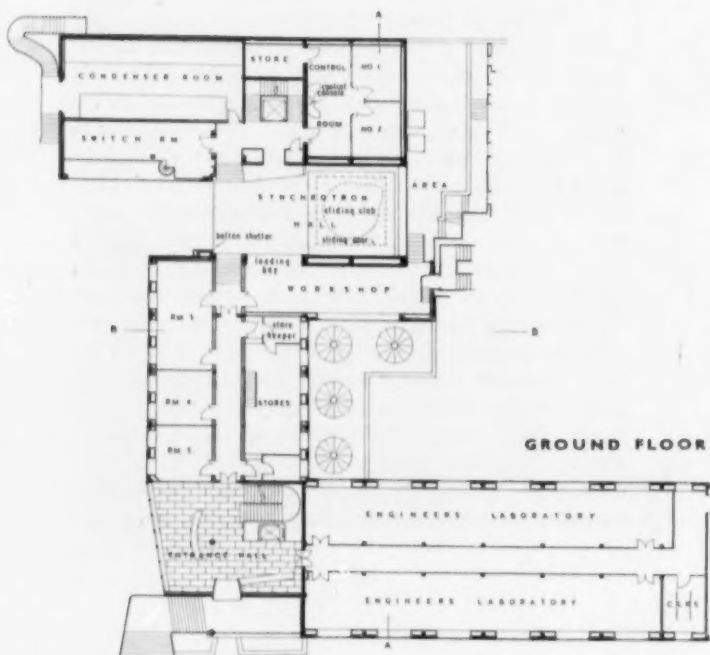
THIRD FLOOR



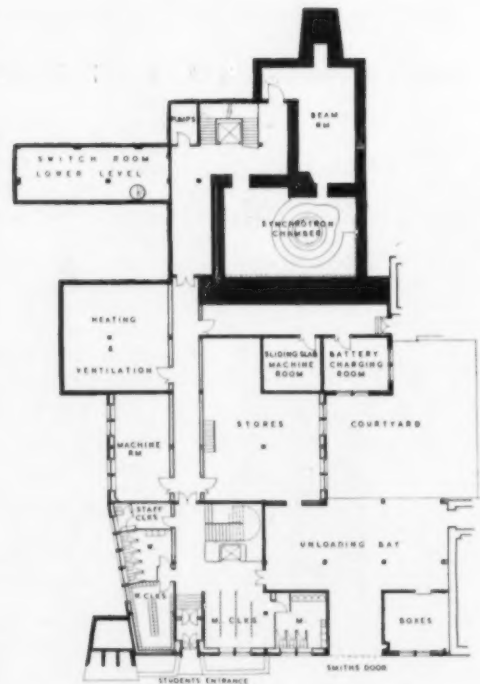
FIRST FLOOR



SECOND FLOOR



GROUND FLOOR



BASEMENT

The West wing shown on these drawings has not yet been built.

Continued from page 69

vibration; at the same time complete access to the Synchrotron was necessary to enable erection, maintenance and adjustment.

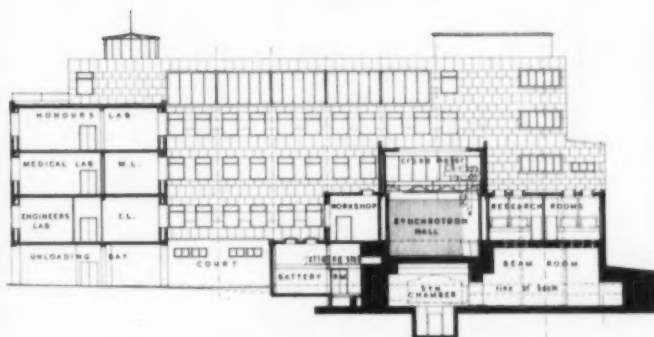
To achieve the latter object, a 150-ton sliding door over the top of the Synchrotron is arranged to seal it off. The Synchrotron and associated rooms are sunk into the ground and the beam directed into 15ft of concrete at the side of Gilmour Hill on which the University stands.

The remainder of the block containing Standard Research Rooms, special administrative rooms, Professors' rooms, Library, etc., is associated but not dependent on the Synchrotron Section.

Future extensions include a wing on the West side to include teaching rooms for Engineers, Medical Students and Physicists. A small Source Laboratory was built separately in connection with the present scheme.

Planning

Access to the site was only permitted from the North



LONG SECTION A-A

and West from which it was necessary to introduce very heavy loads to the Synchrotron areas.

During boring operations, old mine workings were discovered undermining the whole site, and much underpinning work had to be done in view of the expected vibration from the machinery.

The clients required the Synchrotron and associated gear to be accommodated as soon as these were ready, without any regard to the state of the building as a whole, and delivery of this plant began in February 1950 when only the East end had been partially completed to give the necessary cover. Building began in the Autumn of 1948, and about 1½ years was required to excavate to the appropriate depth and to come up again to the various ground levels with very heavy underground concrete works and foundations.

In the following year, the frame, encasing and floors were completed, by which time a large proportion of the Synchrotron end, including the Lecture Room and Synchrotron Hall, was completed, with stonework and roofs.

The installation of the Synchrotron and the completion of this end went on during the following year (1951), and this portion was then taken over by the staff associated with the running of the Synchrotron.

The rest of the building was handed over at the beginning of the Academic Year in October 1952.

The basis of the plan is a series of Standard Research Rooms on a 16ft grid on either side of a central corridor

[Continued overleaf]

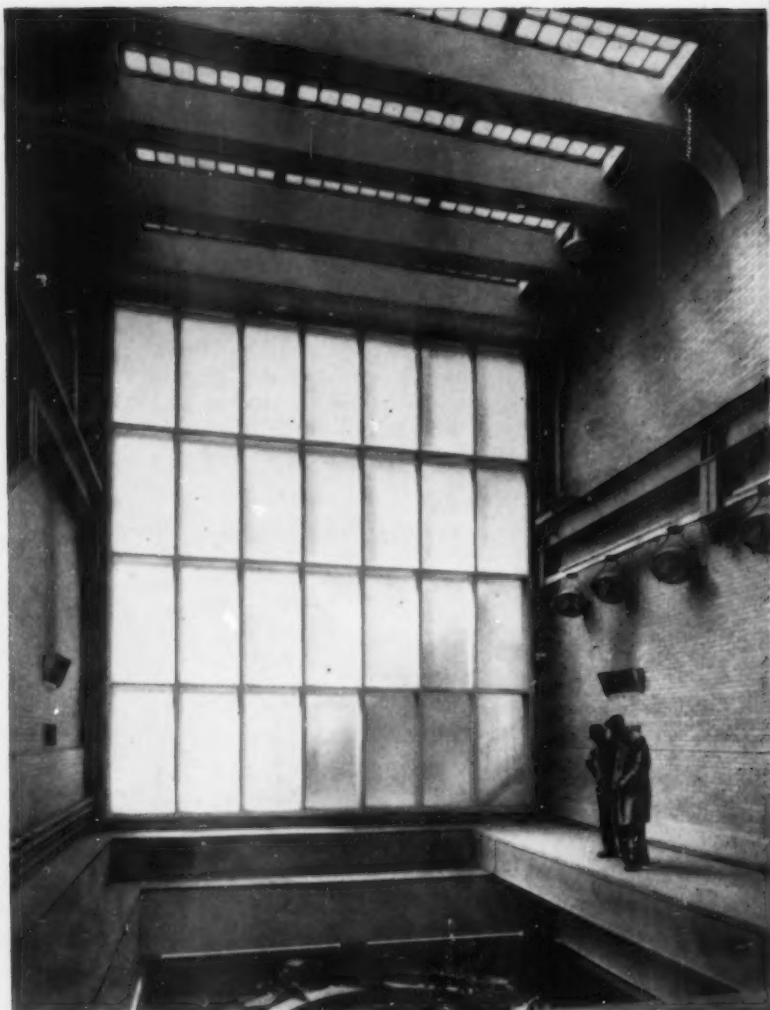
From South-East. The Synchrotron Hall can be seen projecting at right angles to the main block.



Control Room



The Synchrotron



Synchrotron Hall

Department of Natural Philosophy.

in which services are carried in the ceiling. The corridor and outer walls are hollow with vertical and horizontal access between floors and from room to room, and have removable terrazzo panels on the corridor side allowing cables and pipes to be run in all directions.

Construction

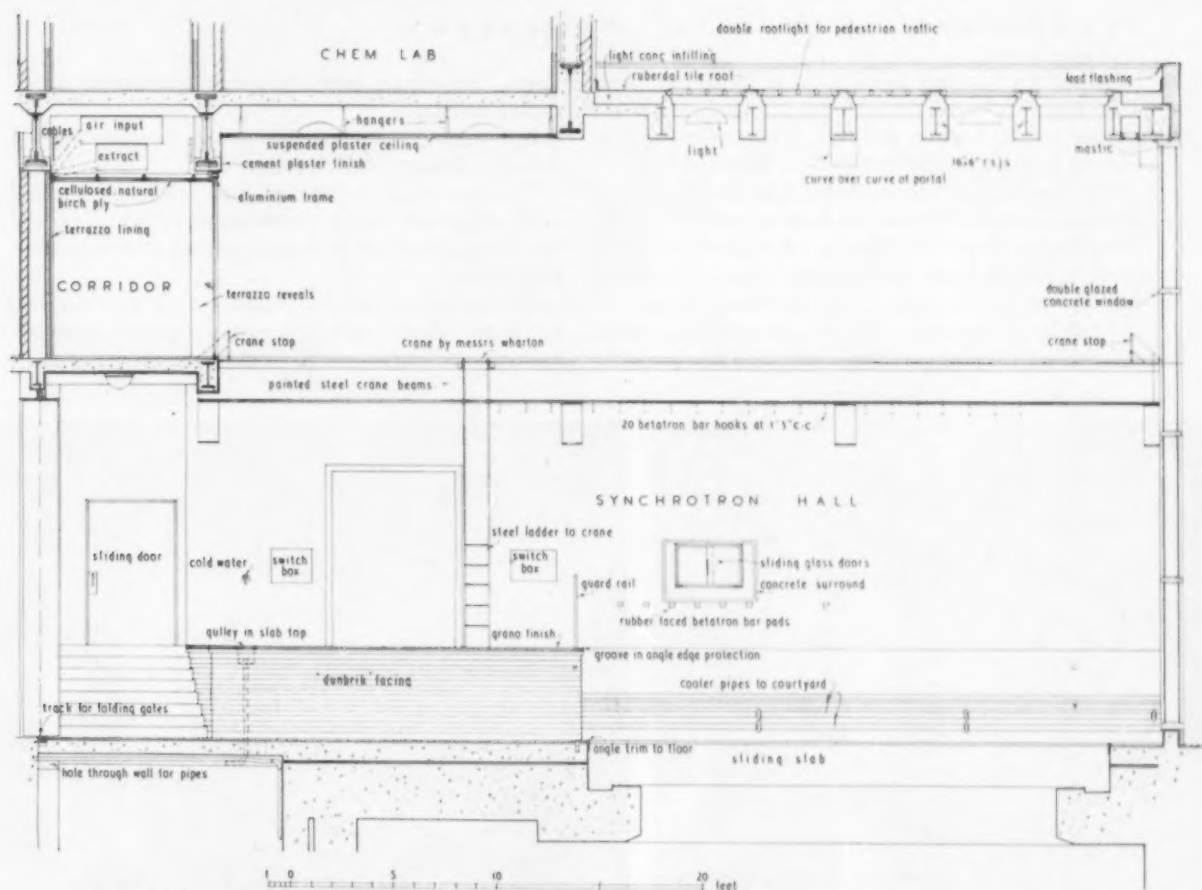
The construction consists of an encased steel frame with hollow-tile floors, mainly brick partitions, and outer walls faced with 2½ in. Portland Stone on a 9 in. inner skin of brickwork. The rubble base is in Blaxter stone. Southhook silver grey facing bricks are used internally on the rear stair Hall and Synchrotron Hall. Window frames are of anodized aluminium. Balustrading is also aluminium or mild steel painted. Plaster is used generally for internal finishes with the exception of the entrance hall where one wall is in polished Inmos-thay Stone (Portland). Birch and Mahogany panelling

is used for the Lecture Room and part of the Common Room. Doors are veneered in Ash or Birch, and most of the furniture, which is generally architect-designed, is in Ash-veneered blockboard or Mahogany. The Research Rooms have Paxtile ceilings and Afrormosia working tops and tables. The floors of the Entrance Halls and stairs are in terrazzo, whilst the corridors and most of the Research Rooms are covered with lino. The Lecture Room floor is in rubber, and the Administrative Rooms, Museum and Library are finished in cork tiles. The floors in the working areas have a grano. finish containing a hardener.

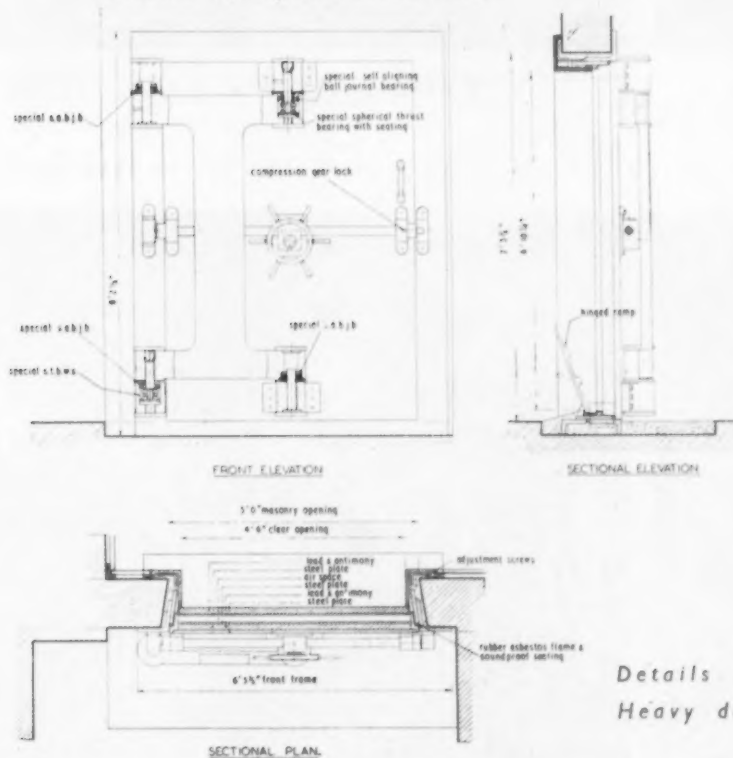
Services

These include a 3-ton goods lift and six-passenger lift. A 50-ton travelling crane with 50-ton and 5-ton hooks in the Synchrotron Hall. The Beam Room contains a 5-ton travelling crane, the upper Switch Room a 30-cwt.

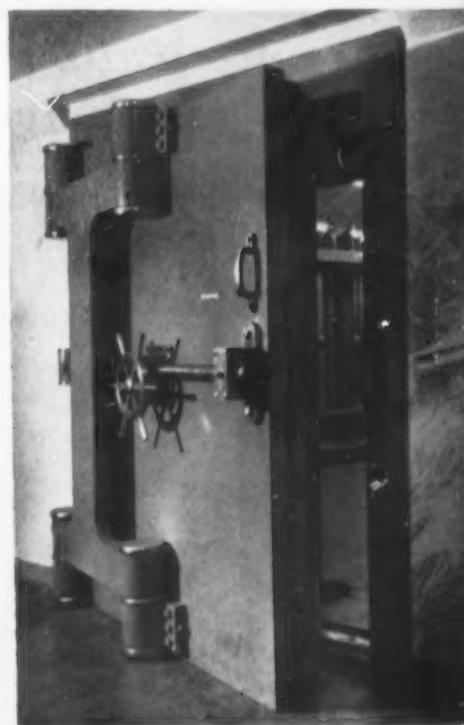
[Continued on page 74]



Details of Synchrotron Hall



Details of Heavy door



Department of Natural Philosophy

Continued from page 72

hoist, and the Loading Bay a 5-ton and a 30-cwt. hoist.

All Research Rooms are provided with gas, compressed air, hot and cold water, and various electricity supplies. Oxygen is also provided in the Glass Blowers' Room.

The Ventilating Plant is divided into several sections, the main plenum system for the building being in its own Plant Room. Beside this there is a Synchrotron Cooling Plant, a Switch Room Conditioning Plant. The Upper and Lower Switch Rooms and Condenser Rooms are covered by an automatic CO₂ fire extinguishing system, and the various sections of Plant, including the Condenser

Room, are on an interlock system preventing access during running.

Hot water is supplied for heating purposes from a central University Boiler House.

The pipe runs in the Research Rooms are behind easily removable timber panels under the shelving, and the electrical services in a metal conduit with removable front plates.

The telephone system includes a 50-line internal automatic 'phone exchange, and a separate automatic intercommunication system in the Synchrotron areas.

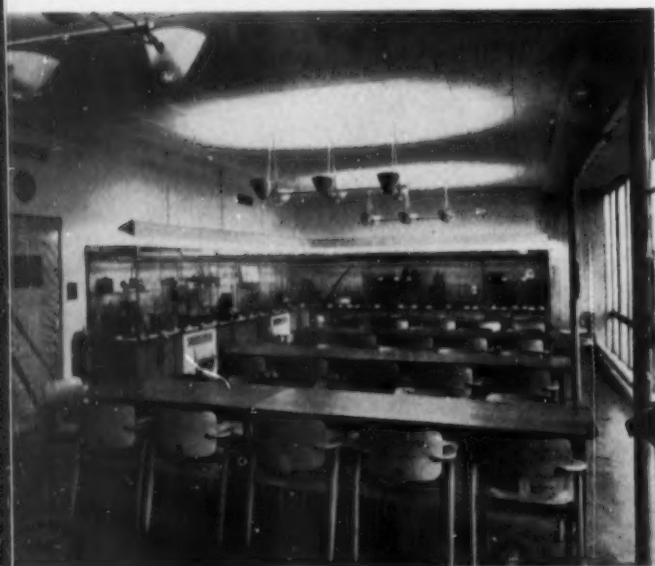


Professors' room



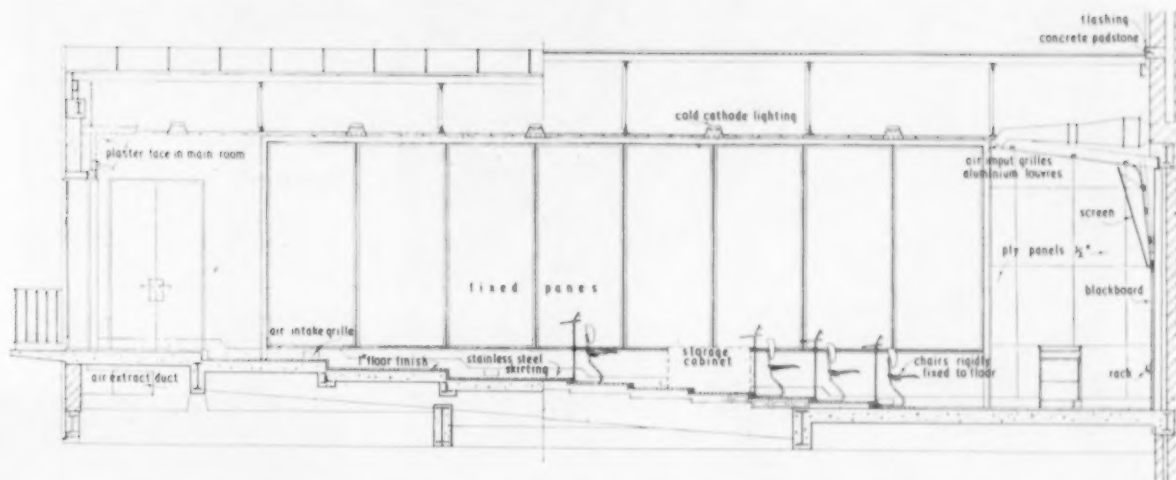
Waiting space, main office

Museum with Kelvin Apparatus

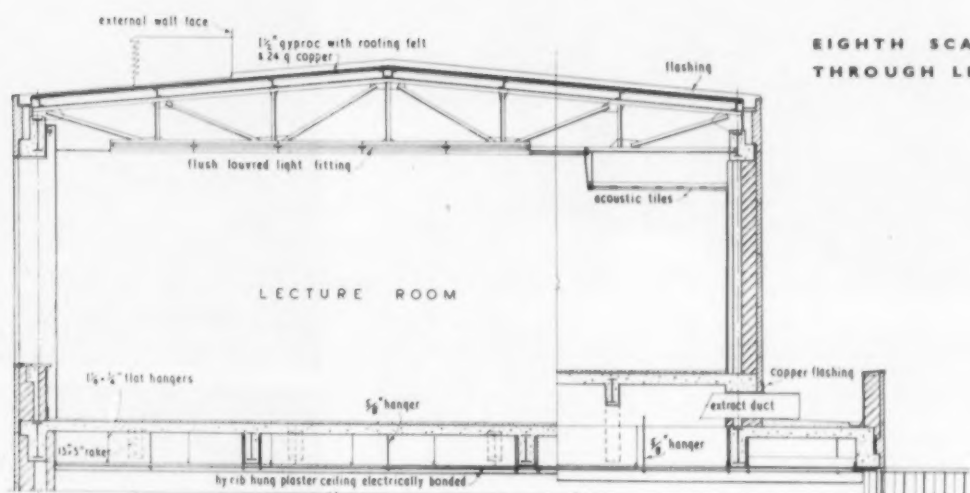


Library



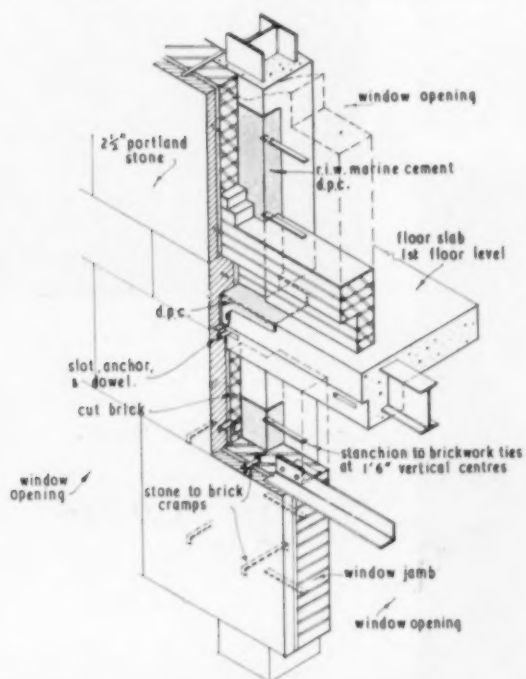


EIGHTH SCALE SECTIONS
THROUGH LECTURE ROOM



Detail of north external wall

Mathematicians' Room





Department of Natural Philosophy

Crouch & Hogg
Civil Engineers
Donald Smith, Seymour & Rooley
Heating and Ventilation
Sayers & Crum
Electrical
Robert B. Grey, A.M.T.Mech.E.
Acoustics
James Barr & Son
Surveyors
Thaw & Campbell Ltd.
General Contractors |



Asphalt: Val de Travers Asphalt Paving Co., Ltd. Bricks: Southook (Facing), Patterson (Clay). Central Heating: Steeles, Ltd. Chairs: James D. Bennett, Ltd. (Lecture Room Chairs), Thos. Justice & Son, Ltd. (Wooden Chairs), Neil Morris, Ltd. (Stax Chairs), Scottish Furniture Manufacturers, Ltd. (Stax Chairs). Cloakroom Fittings: Bell Donaldson & Co., Ltd. Clocks: Gent & Co., Ltd. Connectors and Unit Heaters: Copperadd, Ltd. Doors: John Cochrane, Ltd. (Fireproof) (Revolving), Bell Donaldson & Co., Ltd. (Revolving), Newmans (Revolving). Door Furniture: Bell Donaldson & Co., Ltd. Electric Heating: Osborne & Hunter, Ltd. Electric Shelving and Switchboards: Younger. Electric Light Fixtures: Troughton & Young, Ltd., The Merchant Adventurers of London, Ltd. Fireproofing Installation: Pyrene, Ltd. Floors: Hollow Tile & Encasements. Dispeker & Co., Ltd. Furniture: John Cochrane, Ltd. Gates—Folding: The Bolton Gate Co., Ltd. Glass: The National Glass Co., Ltd. Glass for Revolving Doors: Pilkington Bros., Ltd. Ironmongery: Bell Donaldson & Co., Ltd. Joinery and Cabinet Making: John Cochrane, Ltd. Lifts, Sliding Slab and Heavy Doors: G. E. Jensen, Ltd. Lift Enclosures: Fredk. Braby & Co., Ltd. Office Fittings: Roneo, Ltd., Watsons (Steel Bins). Painting, Signs, Wallpapers: James D. Bennett, Ltd., John Cochrane, Ltd. Patent Glazing and Window Furniture: Williams & Williams, Ltd. Plaster: Geo. Rome & Co. (Glasgow), Ltd. Plumbing and Gas Fixtures: A. Macdougall, Ltd. Pumps: Drysdale & Co., Ltd. Railings: Charles Henshaw & Sons, Ltd. Roofing: D. Anderson & Son, Ltd. ("Thermotile"), Hugh Twaddle & Son Ltd. (Copper). Rolling Bins: J. Glover & Son, Ltd. Rolling Shutters: Haskins, Ltd. Sanitary Fittings: Shanks & Co., Ltd. Shrubs and Trees: Sports-works, Ltd. Shuttering: James Laidlaw & Sons, Ltd. Stairs: Fredk. Braby & Co., Ltd. (Pressed Metal), Walter MacFarlane & Co., Ltd. (Spiral Stairs). Staircases—Iron (Hung Stairs): Bell Donaldson & Co., Ltd. Stairreads: Toffolo Jackson & Co., Ltd. Stonework: Bath & Portland Stone Firms, Ltd., Thaw & Campbell, Ltd. Structural Steel: Fleming Bros., Ltd. Sunblinds: John Bryden & Sons, Ltd. Synchrotron and Associated Gear: Metropolitan Vickers Electrical Co., Ltd. Telephones: Siemens Bros. & Co., Ltd., G.P.O. Terra Cotta: Thaw & Campbell, Ltd., J. W. Howie. Terrazzo and Marble: Toffolo Jackson & Co., Ltd. Tiling: Shaws, Johnstones. Travelling Cranes: Wharton Crane & Hoist Co., Ltd. Ventilation: Steeles, Ltd. Waterproofing Materials: Evode Chemical Works.



Above, main staircase.

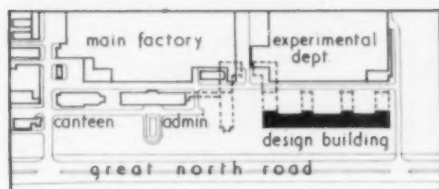
Extreme left, students' entrance.

Left, circular door in main entrance.





View from North



BLOCK PLAN

DESIGN OFFICES, HATFIELD for the De Havilland Aircraft Co.

Architects : JAMES M. MONRO & SON

PRELIMINARY sketch plans for this new design office block of 78,000 sq ft within the main walls, were prepared in May of last year and in 13 months the building was ready for occupation.

The building is designed to harmonize with and to diminish as little as possible the importance of the existing Administration Headquarters. It is part of a master scheme for the potential development of the frontage to the Great North Road and has provision for extension in the form of four legs. All lavatory accommodation, service mains and plant rooms for the whole building are incorporated at this stage. The building's main approaches are situated at the rear in order to allow easy circulation to the existing Experimental Shops.

Planning

In order to conserve natural daylighting in the drawing offices it was considered appropriate to group the lavatories and staircases in service towers at the point of junction with the future wings. These towers contain fully accessible vertical service ducts from the calorifier and switch gear rooms in the basement up to the tank and ventilation plant rooms at roof level, and provide for the lavatory blocks at each floor level.

The plant rooms contain fully automatic equipment for the supply of tempered air to the building and duplicated input and extract fans are incorporated in lavatories. All are sized for the accommodation of future extensions.

Service rooms in the basements are kept entirely separate

from the main basement areas by means of fire-resisting walls and have separate approaches from a door to the open quadrangle. It is also possible to enter the service duct from the lavatories at each floor level. Automatic fire-resisting shutters are incorporated in the ductwork as well as sections giving acoustical absorption.

The remainder of the basement is designed for use as document and plan storage and is approached separately from the entrance foyer.

The building is designed on a 2ft module, with stanchions spaced at 14ft centres. Beams spanning the entire width are 46ft long and fixed to the stanchions with specially stiffened connections. A layout of four 10ft drawing benches with a 5ft central corridor is possible, the uninterrupted floor area of each drawing office being some 22,000 sq ft. Three such offices are provided at Ground, First and Second Floors, connected by the two service towers.

Expansion joints on the 473ft long building are designed without duplication of stanchions and provide for relative movement at three places.

Finishes

Internally.—The flooring in the main office areas is in Opepe laid in herringbone pattern and the plastered walls are emulsion-painted a pale shade of duck-egg green, with skirtings and windows in light mushroom. Sills to the ground floor are of faience whilst those to the first and second floors are of built-up timber construction covered in Korkoid and positioned at bench height. The depth of

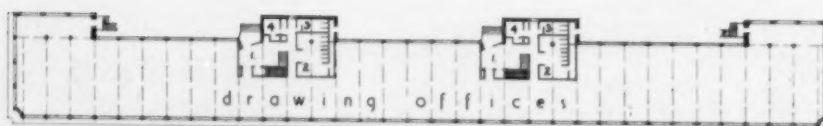
De Havilland Offices



FIRST FLOOR

key

- 1. entrance hall
- 2. mens lavatories
- 3. womens lavatories
- 4. tea preparation



GROUND FLOOR

SCALE: 1 IN = 96 FT

these sills allows the use of double sashes should aircraft noise render this desirable in the future. Recesses are provided to all windows for aluminium venetian blinds in colour, which will complete the main decorative scheme.

On the ground floor of the Southern service tower a glazed entrance opens into a small reception foyer for visitors and from which the basement is approached for document storage. A similar hall but without provision for reception, is situated at the base of the Northern service tower. The main staircases rise to the upper floors, the strings and risers being faced in green Korkoid with white Ferodo nosings incorporated in the treads. A mahogany capping and simple handrail covers the metalwork whilst a screening panel is formed throughout the flight, by means of block-board attached to the balusters and covered with a deep red Vinyl leathercloth. All hardwood joinery is in mahogany and the glazed panels of the doors to the main offices are relieved with beads in beech.

All walls in the entrance hall and staircase are painted light grey with the exception of one staircase wall which offers some noise absorption and is covered with chequered Vinyl cloth. Staircase soffits and landing ceilings are pale green picked out in white.

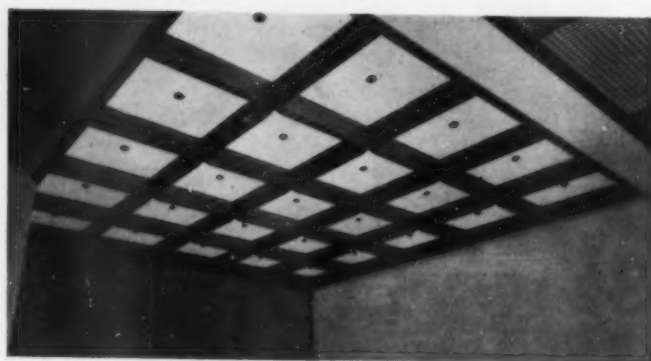
At the head of the staircase a plain, glazed timber laylight, designed to provide a means of cleaning from above, forms the ceiling and is enriched by small cast metal stars attached to the glazing. Natural light to the laylight is obtained by means of a glass brick wall and pavement type units over. At night, spotlights mounted above this laylight provide similar diffused lighting.

Lavatory accommodation for both sexes have pale grey *in situ* terrazzo walls and a darker grey precast terrazzo tile floor. The W.C. partitions are also precast and the doors finished Spanish red. The wall frieze is painted white and the ceiling sky blue. Four fire hydrant points are provided on each of the main floors.

Services

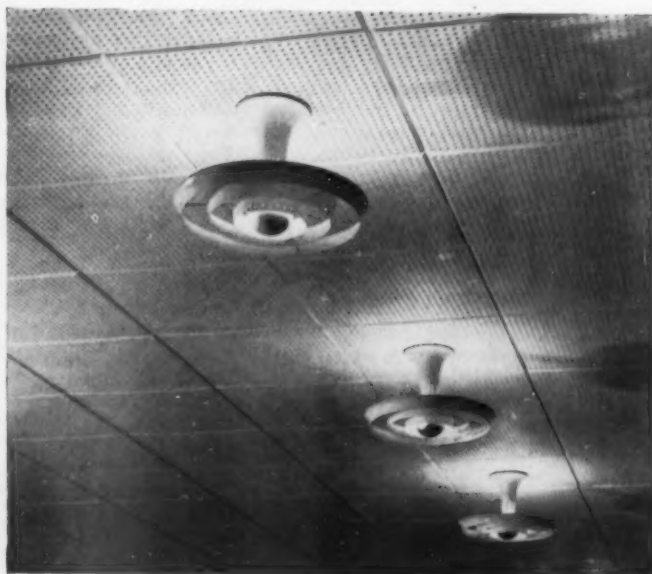
Heating.—Radiant ceiling panels are used for general heating and these give the required acoustical properties. 2ft by 2ft Menzel removable plaster panels are fixed to a light metal grid containing the heating coils with glass quilting positioned above to act as an insulating membrane and acoustical absorbent which is continued vertically as a vapour barrier to the external walls. All panels are readily demountable and exchangeable.

Ventilation is on the plenum principle, the main distribution ducts being placed outside the main stanchions abreast the wall to avoid increase in the overall height of the



The laylight at the head of the stairs

Specially designed light fittings in the drawing offices



SECTION SCALE: 1 IN = 18 FT

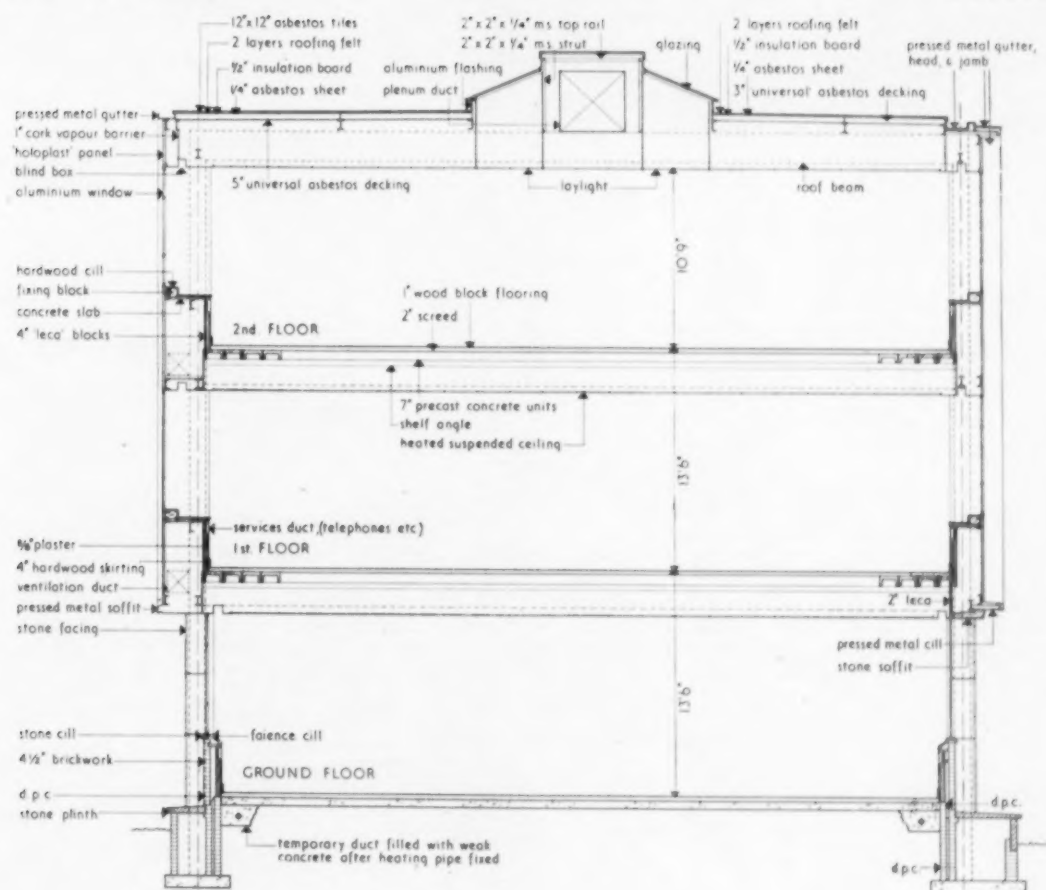
[Continued on page 80]

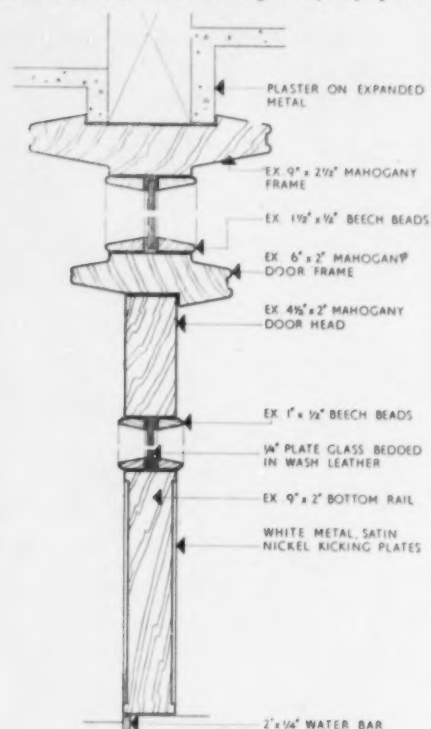


Main staircase



Lavatories



Entrance doors. Section $\frac{1}{2}$ F.S.

Rear of building.

Main entrance.

De Havilland Offices

Continued from p. 78]

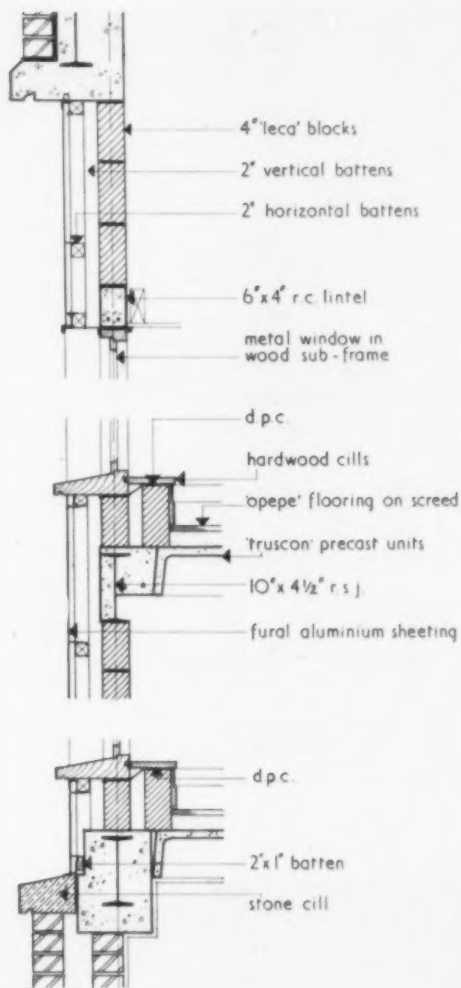
building—and its stairs—by running beneath the floor. Fresh air to the top floor is provided by means of roof ducts mounted between continuous rooflights. All secondary distribution ducts are so arranged in the ceilings that outlets can be moved with the minimum of disturbance.

Electrical.—The main high-tension transformers are positioned in the basement and local distribution is via wall and ceiling ducts. The ceiling duct above the suspended ceiling is fitted with plug points and flexible leads are taken therefrom to the lighting points, the position of which can be varied without alteration to the main wiring.

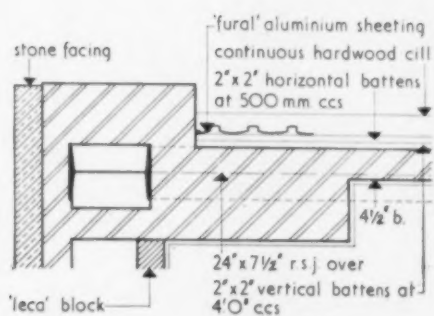
Externally.—The front elevation shows the stone-faced ends of the wings of the future extensions. These are linked by blocks clad with a Holoplast curtain wall. The stone is particularly white in colour with a mother-of-pearl exposed aggregate to give brilliance. Aluminium windows are set into the curtain wall extruded sections, the whole being contained in a projecting aluminium surround. These link blocks move as a unit in relation to the expansion joints.

At the rear elevation the use of Fural cladding to provide a windproof and weatherproof covering easily dismantled and 100 per cent re-usable, will facilitate future extension. The steel emergency stairs on this elevation are also designed for re-use by building into the ends of the future wings.



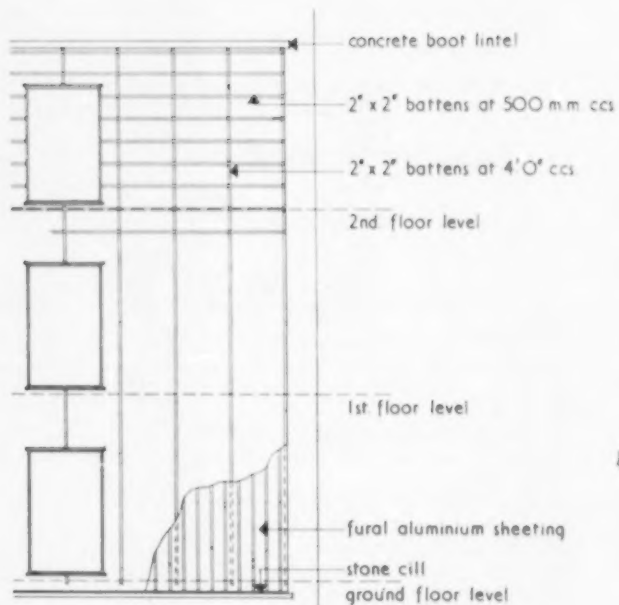


Section. Scale: $\frac{1}{2}$ in = 1 ft.



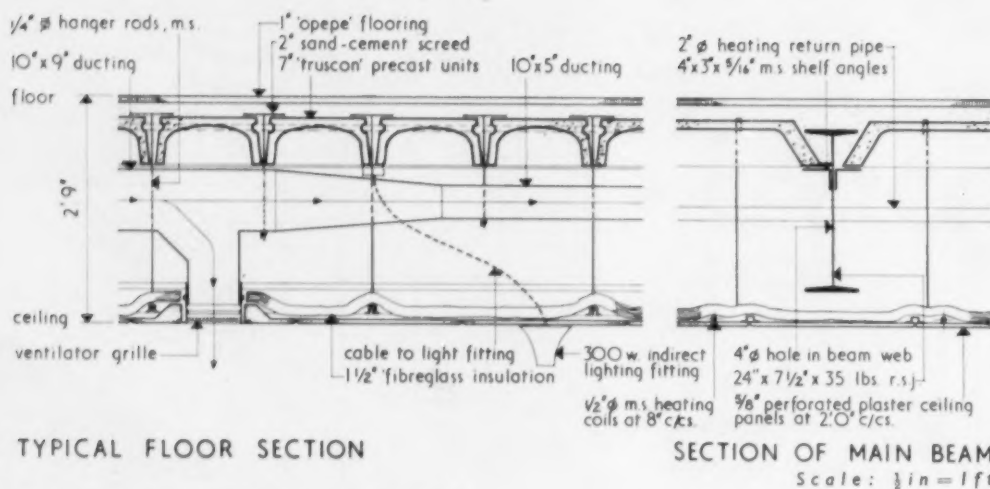
Plan of temporary end: jamb

Details of the "Fural" aluminium cladding to temporary end.



Sectional elevation



De Havilland Offices, Hatfield

General Contractor: Bovis Ltd.

Asbestos Decking and Aluminium Cladding: Brock Roofing, Ltd. Balustrading: Grundy Arnatt, Ltd. Cat Ladders and Access Covers and Frames: Clark, Hunt & Co., Ltd. Ceiling Panels and Heating: K.C. Menzel (Heating Engineers), Ltd. Cladding (Fural): S. W. Ronald & Co. (London), Ltd. Electrical Works: Electrical Installations, Ltd. Felt Roofing and Insulation Board Underlay: Williams Briggs & Sons, Ltd. Floor Screeds: Kendells' Flooring, Ltd. Glazed Tiling and Terra Cotta Work: Shaws Glazed Brick Co., Ltd. Glazing: Aygee, Ltd. Holo-

plast Cladding: Holoplast, Ltd. Insulation Board Lining: Anderson Construction Co., Ltd. Korkoid Flooring and Asphalt Bed.: Korkoid Decorative Floors. Lifts: Murryat & Scott, Ltd. Magna Roof Lights: Gillingstone Ferro-Concrete Co., Ltd. Medina Partitioning: Saro Laminated Wood Products, Ltd. Metal Windows: Crittall Manufacturing Co., Ltd. Patent Glazing: Helliwell & Co., Ltd. Plastering: Thomas & Wilson, Ltd.; James Nichol, Ltd. Precast Floor Units: Trussed Concrete Steel Co., Ltd. Pressed Steel

Stairs: Fredk. Braby & Co., Ltd. Pressed Steel Tanks: Braithwaite & Company Structural, Ltd. Steel Rod Furring and Expanded Metal Lathing: Steel Bracketing & Lathing, Ltd. Steelwork: Redpath Brown & Co., Ltd. Stonework: Empire Stone Co., Ltd. Terrazzo Cills: Diespeker & Co., Ltd. Tiling and Terrazzo: Zanelli (London), Ltd. Ventilating System: Brooks Air & Heat Systems, Ltd. Waterproof Screeding and Rendering: Quickset Water Sealers, Ltd. Wood Block Flooring: Hollis Bros., Ltd.

General view of drawing offices





Northern Ireland Stand



Some Recent Exhibition Stands

THE North Greenland Court, central feature of the section of the fair at Olympia, was designed by Arthur C. Braven with the assistance of G. I. Holmes. Built by Olympia, Ltd. for the Board of Trade, it was designed to tell the story of the North Greenland Expedition. It featured special equipment, models, sledges, dinghies, scientific instruments, and so on, lent by the Royal Navy, Army, Royal Air Force and Scientists who made the expedition possible. Dummy figures and equipment were placed on raised platforms with artificial snow. Above these platforms white "pinnacle" light fittings were suspended from a pale blue laced muslin valarium. The colour scheme throughout was severe: black, white and pale blue.

The Government of Northern Ireland, Ministry of Commerce, required a large exhibition stand capable of exhibiting a composite display of the chief products of the country. They asked that, while showing industrial products and tourist material, it might give an effect of warmth and a feeling of welcome as a "prestige" stand. The site at Earls Court was 92ft by 36ft alongside "Everest Court," the central feature.

Due to the number of exhibits to be displayed and the nature of the site, it was decided by the architects, Gooday & Noble, to design an "exhibition within an exhibition" in the form of a semi-transparent box having three floors, the 1st and 2nd floor being "opened" as much as possible to allow a feeling of spaciousness within the rope-curtained and panelled walls. This also allowed the penetration of various exhibits through the floor levels.

Constructed in steel on a 10ft x 11ft grid, the stanchions are 3in dia m/s tubes spigoted and site welded in three lifts terminated at their base on a 9in x 9in m/s plate.

Artists who contributed to this

North Greenland Court



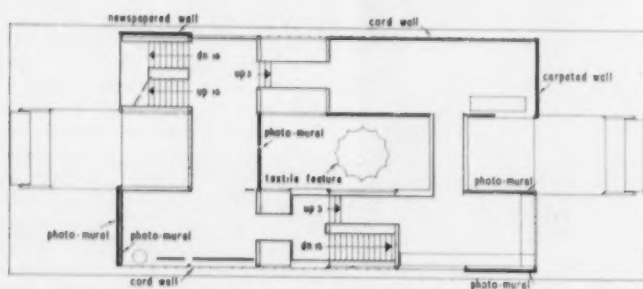
Some Recent Exhibition Stands

stand included: Murals, Daniel O'Neill, James McGuire and Mercy Hunter; Sculptures, George McCann and Cherith Boyd; and a Mobile by Thomas Houston. The general contractor was Russell Bros. (Paddington), Ltd.

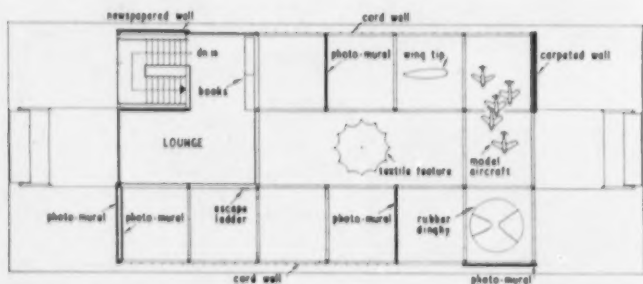
The two small stands below, one for Batchelors Peas, Ltd., and the other for Thompson and Norris Manufacturing Co., Ltd., were designed by Arthur C. Braven. The former was for the display of tinned and packaged food and the latter featured fibreboard packing cases used on the Everest Exhibition. Both stands were built at Earls Court by F. E. Ward.

Northern Ireland Stand

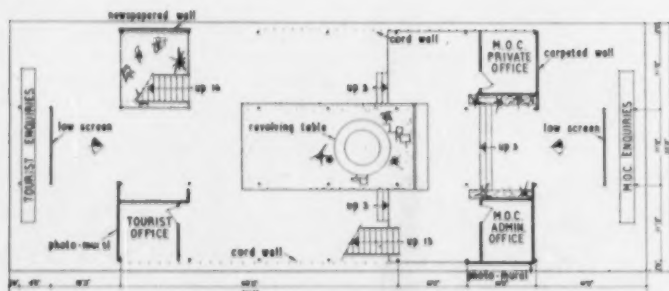
Stand for Batchelors Peas Ltd.



SECOND FLOOR



FIRST FLOOR



GROUND FLOOR PLAN, NORTHERN IRELAND STAND

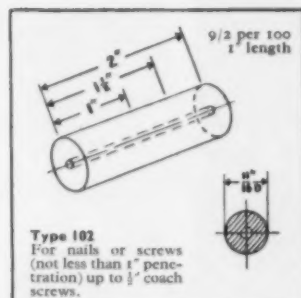


Stand for Thompson & Norris

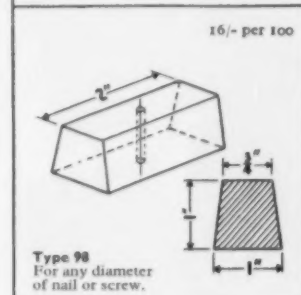
The Advantages of PHILPLUG Inserts

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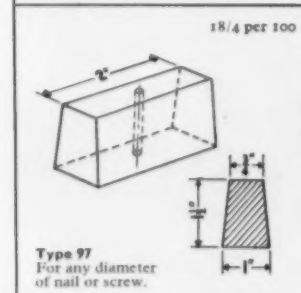
**for fixing metal windows, hinges
switches, heating points, etc. etc.**



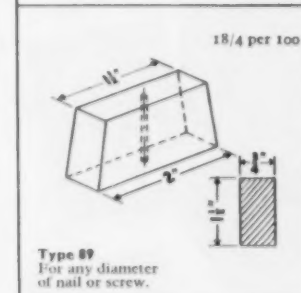
Type 102
For nails or screws
(not less than 1" penetra-
tion) up to 1/2" coach
screws.



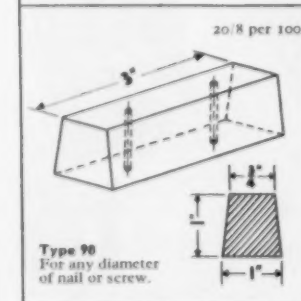
Type 98
For any diameter
of nail or screw.



Type 97
For any diameter
of nail or screw.



Type 89
For any diameter
of nail or screw.



Type 90
For any diameter
of nail or screw.

The use of PHILPLUG INSERTS saves time, labour and money, with no delay in making holes, the Inserts being pre-cast at pre-determined points of fixing. They are made from asbestos fibres and cementitious powders, achieve a natural bond with concrete, will not shrink, and protect screws and nails from heat, damp and rust. Available in many shapes and sizes as fixing points for metal windows, door frames, skirtings, picture rails, hinges, switches, heating points, ceiling and wall boarding, also for fixings in concrete, lamp standards, posts, etc. PHILPLUG INSERTS are competitively priced and offer many advantages over the use of wood blocks.

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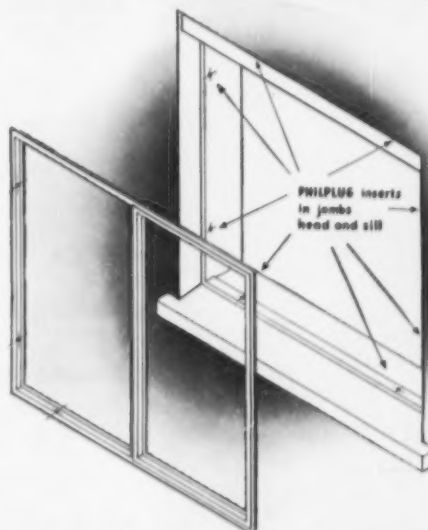
Inserts are provided with 1/8" diameter holes for fixing into moulds. Treat as hard wood blocks and pierce with bradawl or drill any part of the screwing face to provide entry for screw.



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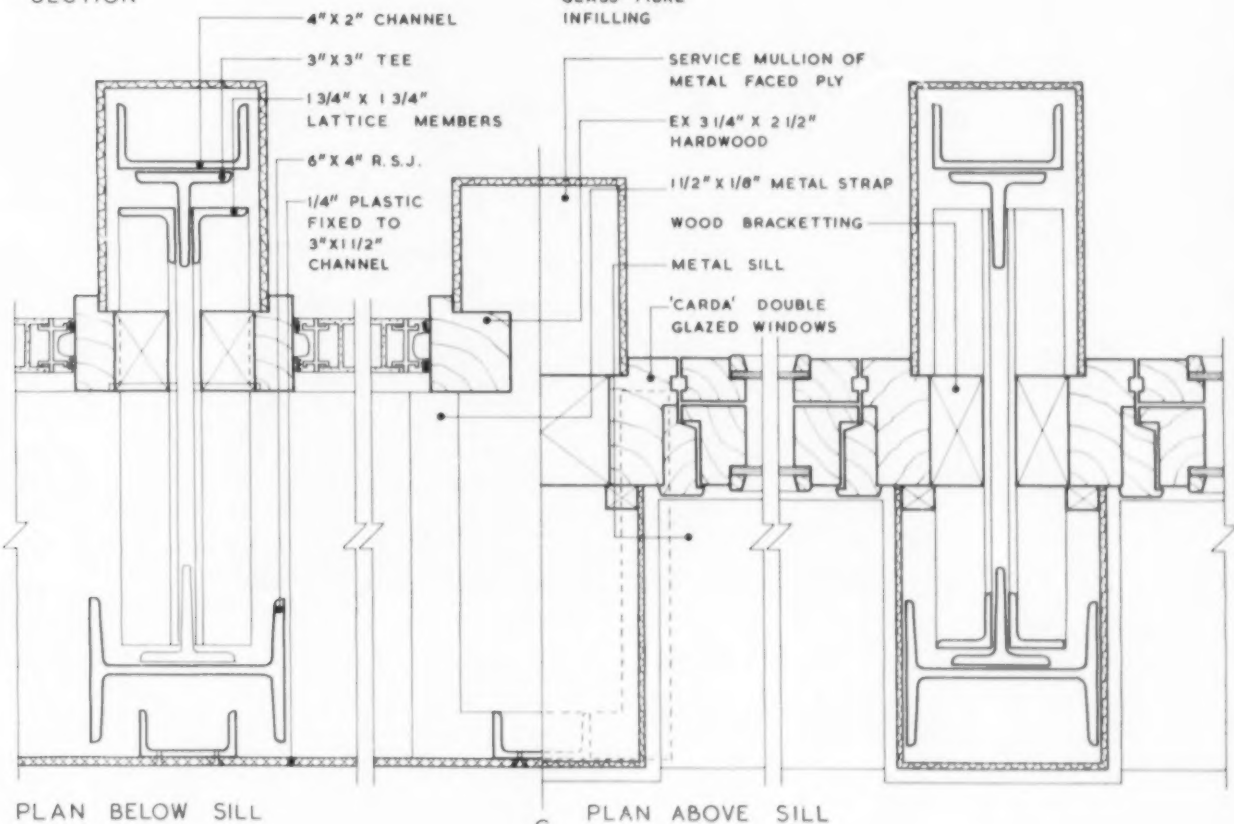
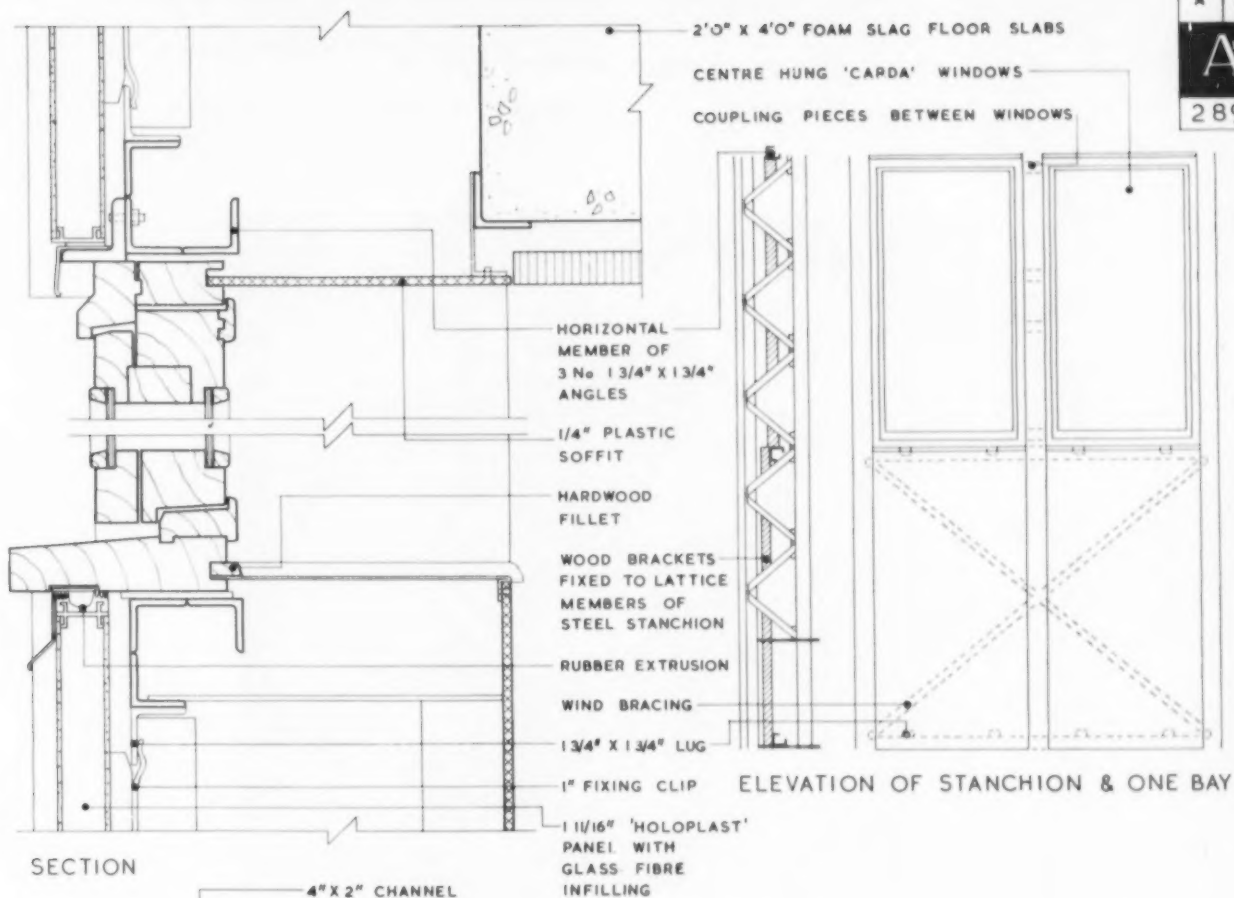


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POINTS FROM PAPERS

PRODUCTION CONFERENCE, 1954

The Production Exhibition and Conference, Sponsored by the Institution of Production Engineers was held at Olympia from July 7-14. Extracts from two of the Papers are given below

Human Factors in Technological Change

BY PROFESSOR C. A. MACE,
HEAD OF THE DEPARTMENT
OF PSYCHOLOGY, BIRKBECK
COLLEGE, UNIVERSITY OF LONDON

THEORETICAL science and practical engineering resources have now advanced to a point at which it is no longer fantastic to conceive the possibility of an electronic factory—one in which the human operator is replaced at almost every point by an automatic contrivance of a mechanical or electronic kind. The next step presumably would be to distribute the goods produced through automatic machines. This producer's pipe dream has at least the merit of drawing attention to the fact that, as we progressively displace the human agent, we reduce both the major sources of resistance to desired change and the major sources of inspiration of desired change.

The problem is one of lowering the resistance to desired change whilst leaving the resistance to undesired change unimpaired. It is a matter of designing a sociological equivalent to the ratchet, an instrument to conserve past gains but allowing further progress in the desired direction.

That resistance to change arises in part from the need to conserve and consolidate past achievements is illustrated by the function of standardization of tools, components and procedures. The uncontrolled spirit of invention and experiment makes for an uneconomic degree of variation in procedures and products. Hence the advantages of standardization. Hence, too, the difficulty in further advances. The dangers of premature standardization are greater when standardization is brought about not by conscious intention and deliberate organization, but by tradition and custom. Many things have been standardized by custom without the blessing of the B.S.I. It is most improbable, either in the light of first principles or in the light of studies at the Building Research Station, that the ideal unit of building construction is the brick of any of the conventional dimensions. But what has been standardized by custom is not the bricks, but the skills of men who use these bricks in building. In the scientific study of the process of industrial production we have come to think of the "man-machine unit," of the process of production as dependent upon the adjustment of the machine to the man who uses it, and sometimes perhaps of the adjustment of the man to the machine. We ought perhaps to think of the man-machine-materials unit. Pending the perfection of the automatic factory, production is effected by human beings performing certain operations with tools or machines upon given materials or components. We cannot standardize any one of these contributors to the end result without due regard to the others. There must clearly be some optimal rate of desired techno-

logical change in any given direction; and it is clearly to be desired that the rate of change should be in some measure under human control. As yet, however, little is known with assurance concerning the factors that determine the actual rate of technological change.

Three groups of factors can be distinguished straight away. First, there are the factors which determine the rate of production of inventive minds. Second, there are the factors which determine the rate of consumer assimilation. And third, there are the factors which determine the rate at which new ideas can be translated into acceptable goods and services.

Increasing Rate of Discovery

There can be no doubt that the rate of discovery has increased enormously, and is still increasing.

Each annual model of every make of car is expected to embody improvements. Indeed, the question might fairly be raised whether the actual rate of change is not now in excess of the optimum.

Were we concerned to make the pace still hotter there would be several things to do. One would be to upgrade and develop our primitive system of technical and technological education—defensible enough on a number of other grounds. Scientific method is in itself a technique of discovery as well as a technique of proof, and there are vast areas of research in which invention is reduced almost to routines which are or could be taught in the technical schools. But originality of mind is something more than skill in the use of scientific method. It springs from certain attitudes of mind which at present are fostered only in certain special places. If we review the greater educational institutions of the world—from the ancient universities to the modern institutes of technology—the impression received is that those most productive of creative minds are precisely those in which trained and disciplined intellects are applied to the coolest consideration of the craziest of ideas. If we wished to increase the pace of inventive technological thought, the techniques employed in these institutions could readily be applied in other divisions of our educational system.

The place to begin, perhaps, is the secondary technical school. There is indeed a powerful case to be argued for making a liberalized system of technical education the main trunk of our education tree. It would need to be "liberalized" by introducing into the curriculum an appropriate selection of arts subjects, for the arts subjects contribute to inventiveness and originality as much as is contributed by science. The technologies, in fact, stand at the point of intersection between the sciences and the arts and between both of these and the practice of the inventive skills. The potter, the weaver, the architect and the designer of machines is, each one of them, if he knows his job, something of an artist, something of a scientist and one who practises a skill. A liberalized secondary technical education could lay the foundation for a balanced appreciation of the scientific, the aesthetic and the practical aspects of life.

Importance of Advisory Services

One of the most significant features of the times in which we live is the expansion of these services. The farmer is advised by the Ministry of Agriculture, the builder by the Ministry of Works, and so it is for almost every industry or profession. In his personal affairs a citizen in the modern world has at his disposal medical, educational and innumerable other specialized bureaux dispensing the latest and best advice on any subject of concern to himself or his wife. Nor are such advisory services restricted to official bodies. Large-scale industry has developed similar services which are conducted in a responsible and professional way. Had he the time and the inclination, the citizen could devote the whole of his leisure time to the inexpensive hobby of collecting good advice. But these advisory bodies would seem themselves to stand in need of advice based on a growing body of scientific knowledge of the theory of human communication. In large part, the problems of getting ideas into production are of overcoming consumer resistance and are problems of "communication," meaning by "communication" not merely the transmission of information, but also the induction of a willingness to act in certain ways.

The lines of transmission are of various kinds. There is, for example, the line from the inventor through the research laboratories and test stations to the field of operation. In the process of production there is the line from higher management through the supervisory grades to the operators at the bench who actually do the job. In general, these are not so much lines as expanding circles. Ideas may be conceived in individual minds, but their implementation is a matter of activity on the part of larger and larger groups. In this process of transmission, resistances often increase in a way suggestive of the law of the inverse square; and the measures required to overcome resistances are almost always measures directed not to the individual, but to his group. Most typically, the introduction of a new machine, a new piece of equipment, or a new procedure follows a now fairly well-established routine. Tests are first performed in the research laboratory. The new machine is then transferred to the field station in which it is still tested scientifically, but under as near as may be realistic conditions. Surviving all these tests, it is then tried out under the normal industrial conditions in the hands of ordinary operatives working in the ordinary way and with normal motivations. This third phase is apt to be the most critical, but it is one that receives the least attention. There is, in fact, a striking contrast between the precision of scientific testing in the laboratory or field station and the casual procedure in the transference of a new device from the tester to the normal user for whom it is intended. From the nature of the case, user—or consumer—reactions cannot be tested in the laboratory or a field station. Motivations and attitudes are essentially

different. There is all the difference in the world between the man in the field station who is excavating a trench in order to test an excavator, and a man on a building site who is using an excavator in order to excavate a trench. Technological inventions need to be tested not only for their physical capacities but also for "acceptability," and the latter tests require to be as searching and as rigorous as the former and every bit as much subject to scientific control. The critical point, the point of maximum resistance, is precisely the point at which some particular individual is required to change some well-established habit, or acquire a new skill.

It is a basic misunderstanding to suppose that all resistance to change arises from sheer irrationality and prejudice. Men are not in general implacably opposed to the acceptance of something to their own advantage, but it is only common prudence to look a plausible gift horse in the mouth. Sheer prejudice is on the whole a less serious obstacle to progress than prejudice reinforced, as it so often is, by a measure of reason and good sense. It is not unnatural and not unreasonable for a man to be anxious at the prospect of loss of employment. When a man has invested not only his money but also his self-respect in the acquisition of rare skills, it is not a joke to find these skills supplanted by a gadget. If there is one lesson which more than any other stands out from the better studies in this field, it is a lesson concerning man's fear of insecurity and his continual need for reassurance. The engineer, thinking only of the time it takes to design, construct and instal a new and better machine, is naturally impatient at the delays imposed by the need endlessly to explain and convince and reassure everyone concerned, not least those in whose interest and for whose benefit the machine has been conceived. Even a labour-saving device makes work harder and calls for further effort for a time—during a longer or shorter period of transition from the old to the new.

It is sometimes suggested that British industry has over-emphasized the importance of durability and quality, and that it would do much better if it designed clothing, cars and buildings so that they wore out. On this there may be more than one opinion. But there can hardly be two opinions on the suggestion that, whatever we do, we should know what we are doing and do what we do with conscious intention. It is a matter of having a policy, so that every man can arrange his purchases with an intelligent regard to obsolescence and replacement.

The prospects of rational control of the rate of technological change have been significantly enhanced during the present century by the improvement of techniques of publicity, advisory and educational services, and by the development of higher ethical and professional codes in the use of these techniques. "High pressure salesmanship" and the exaggeration, in fact downright untruthfulness, of older systems of publicity were themselves major factors in the creation of "sales resistance" and obstacles to desirable change. Publicity to-day tends to be factual, informative, genuinely advisory and educational.

Advisory services themselves stand in need of advice scientifically based. Although the relevant knowledge is still very sketchy, much more is established than has yet been applied. It is clear

from first principles that an advisory service must be based upon knowledge of actual needs, and of the attitudes, tastes and interests of those to be served. Methods have been developed for these needs and attitudes to be assessed with some degree of reliability and precision. It is clear also from first principles that the effectiveness of any communication will depend upon the extent to which the message is delivered to the right person, by the right person, in the right form and at the right time. It will also depend upon the extent to which the delivery of the message is followed up, its impact assessed and further communications modified in accordance with the "feed back" received. In this way, the results of "mass diffusion" methods of publicity are supplemented by the direction of specific beams of intelligence upon persons and groups in key situations, timed to arrive at the opportune moment, and the effects produced so checked up that future communications can be suitably adapted to the changing situation. Such techniques of communication admit of development in precision and in a scientific way, and through their systematic application the rate of technological change comes increasingly under control.

The Scientific Approach to the Human Factor

Here again the fact emerges that advance depends upon the application of scientific method to the human factors in the situation. The rate of technological change depends upon the rate at which new ideas occur, it depends on the rate new ideas can be transmitted through the relevant lines of communication in production and it depends on the rate of consumer assimilation. It depends, in short, upon the rate at which one man can produce a new idea and the rate at which other men come to be emotionally adapted to its presence.

If predictions are not entirely out of order, the guess might be hazarded that the next great phase of technological advance will be one in which human factors in the technological situation are accorded the same scientific regard as are given to raw materials and machines; and when technologists begin to think in terms of the man-machine-materials unit.

How and when and where can we set about it? Research and development in the human sciences do not follow quite the same sequence as that of research and development in physics, chemistry and the major branches of engineering. Human reactions can be tested in the laboratory and in the field station, but all the most crucial tests are in the field itself. The responsibility for research and development rests squarely on industry. The research laboratory and the field station must be in the factory and the departmental store. The practical problem is that of siting the research function and defining its place in the organizational chart. Is the function to be linked in the main with central management, with the personnel department or the work study unit? The one place in which it should not be situated is in some odd and inconspicuous hole or corner.

"Why Productivity." The first of a series of Action Pamphlets has been published by the British Productivity Council, price 1s. (B.P.C., 21 Tothill Street, London, S.W.1.) Forthcoming pamphlets are: 2. Simplification. 3. Plant Maintenance. 4. Material Handling.

The Work of The B.S.I. as affecting Export Trade

BY H. A. R. BINNEY, C.B.,
DIRECTOR, BRITISH
STANDARDS INSTITUTION

THERE was a time when British industry could afford largely to ignore the standards of other countries—in fact, to "standardize" for export on a purely national basis, and to assume that British Standards would either be adopted as the national standards of the consuming countries or at least would be fully acceptable—and this despite the metric system in Continental countries. But this convenient state of affairs has long since changed. As industrial skills and potentials have developed overseas, so have the means to establish national standards, and this not least in countries—particularly those of the Commonwealth—which previously depended on the United Kingdom for their main supplies of a vast range of capital and manufactured goods.

This development is still accelerating. In some countries, too, standards are made compulsory through statutory regulations; in some others the situation is complicated by the fact that varying regulations are laid down in different states or provinces within the one country (as for example, in Canada and Australia). To-day, as always, the nation which can influence the standards of international trade can for that very reason enjoy a special advantage in that trade. The moral is obvious for a country which is traditionally the greatest exporting nation of the world. While the circumstances in which our influence can now be exerted are radically different from those of half a century ago, we must be no less adept in meeting those changed conditions.

This country's effort on these matters is centralized and focussed through the British Standards Institution under three main heads:—

- (i) Supply of information about British Standards to the overseas markets of the world.
- (ii) Representation of the British point of view at international standards meetings and conferences.
- (iii) Influencing the preparation of British Standards so that they best suit the requirements of export trade.

It is also, of course, a routine task of the B.S.I. to provide an information service on standards developments overseas. All the 33 standards bodies in the various countries interchange information about the standards they publish; and all overseas standards are publicized in B.S.I.'s "Monthly Information Sheet," of which 30,000 copies are distributed each month. Reference copies of all overseas standards are available for study in the B.S.I. Library, with a translation service immediately available. The link with standards developments in Commonwealth countries is even closer: we receive early notice of all the work they are starting, and drafts of all their standards are available before publication for comment by interested and qualified people in this country.

As an immediate and practical step we are setting up a small Export Panel, composed of outstanding men in industry, to advise the B.S.I. on export problems and the impact upon them of standards work. This help and advice will be of great value, but the work needs the thinking and experience of industry as a whole and at many points.

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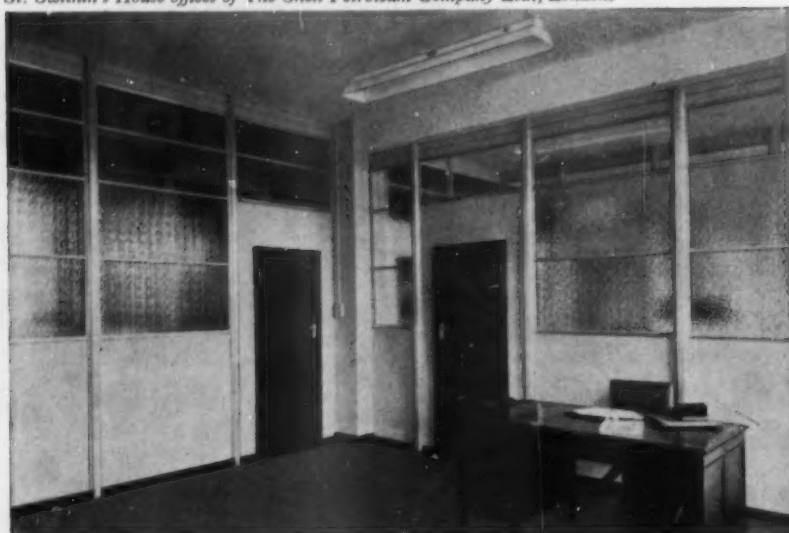
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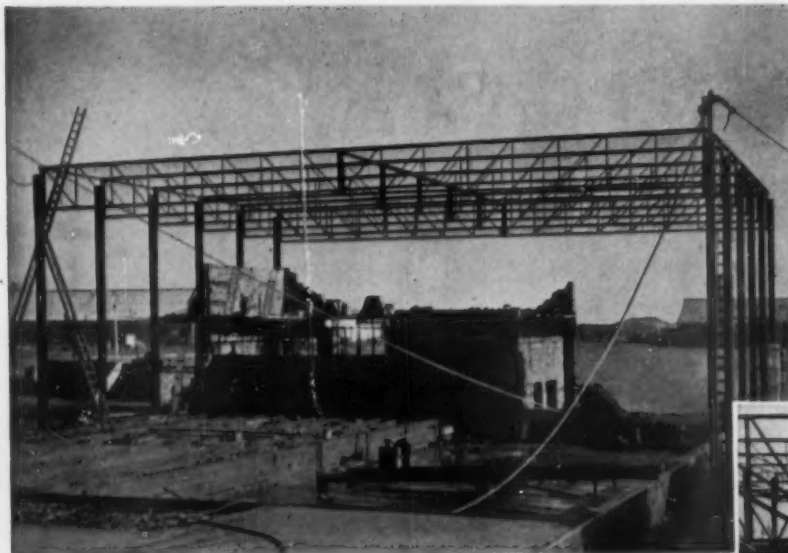


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L.C.C.

Underground Car Parks: South Bank

The planning proposals for the permanent development of the South Bank reported to the Council on November, 3, 1953, included car parks under the riverside open space and the two adjoining squares in addition to those to be provided by developers within the curtilage of their own sites. Covered parking would thus be available for a large number of cars and there would be no surface parking.

The General Purposes Committee of the L.C.C. have now given preliminary consideration to the means whereby such underground car parks might be provided and it seems likely that in view of the probable heavy initial capital expenditure involved it will be necessary if the scheme is to proceed for the Council itself to undertake the construction of the car parks though they might afterwards be leased to appropriate organizations for their actual control and operation.

The Council's present powers are not sufficient to enable the scheme to be carried out as proposed and the Committee accordingly recommend that powers should be sought in the session of Parliament, 1954-55, to enable the Council to construct, maintain, manage, lease and otherwise deal with car parks on the South Bank. It is not, however, sought to make the Council an authority for the general provision of public car parks within the County, as this is a function of the Metropolitan Borough Councils.

Senior Planning Officer, L.C.C.

The Senior Planning Officer in the L.C.C. Architect's Department is to receive an increase in salary from £1,650-£1,950 to £1,900-£2,100 a year to bring it into line with the scales of the housing architect and the schools architect.

MODULAR SOCIETY

The transactions of the Modular Society, Vol. 11, No. 8, contains three reports from study group No. 2 (Principals).

Perhaps the most important of these reports is: "The 4-in Module. The following resolution was passed unanimously:—

This Study Group, after careful review and consideration of the available evidence, recommends the adoption by the Modular Society of a 4-inch module.

The Secretary was instructed to carry this resolution to the Executive Committee with a view to its adoption by the Executive on behalf of the Society and to add that the Study Group's full report was in course of preparation for publication in the Transactions."

This resolution was accepted by the Executive Committee, who directed that it should be published in the Transactions, together with the result

of the Study Group's work upon definitions.

The second report consists of the definitions, which should go a long way to tighten up the informal discussions which are a feature of the working of the society. The early meetings demonstrated only too clearly that each and every speaker has a different idea of what a module should be. The definitions are:—

"A *modular system* is a three-dimensional cubic frame of reference. The *module* is the smallest increment recognized by a modular system. *Modular co-ordination* is the ordering of the external dimensions of components in reference to a modular system. A *modular component* is one whose external dimensions have been determined in relation to a modular system (after making due allowance for the joint or joining member): hence the external dimensions of the component itself need not be multiples of the module. *Modular design* assumes a *grid* (vertical as well as horizontal) equal to the module. Larger grids, called *plan grid* and *vertical grid*, may also be used to control the main lines of a building, provided they are multiples of the module. Plan grids and vertical grids may be square or oblong, and may be different horizontally from vertically, or may be changed from one part of a building to another. A component is *partially modular* when some, but not all, of its external dimensions have been determined in relation to a modular system."

The third report consists of a summary of Modular Co-ordination abroad. This shows that, apart from Germany, 4in, or 10cm, is the usual figure adopted.

TIMBER NOTES

Contractors will be noticing the change in selling prices of softwood as this season's arrivals come on to the market. Bought at higher prices, this timber is being sold at prices several pounds a standard higher than those asked for sales from older stocks, and there must soon be little of the cheaper wood on offer. These new prices represent the level which softwood reached at the end of last year in the importing market, and there has been no change since, but it is only now that these values are reflected in the retail market.

Builders have been making widespread use of Canadian wood, which has the advantage of being cheaper than equivalent Scandinavian grades, as well as highly suited for carcassing and constructional work. Now, however, there is an upward movement in the prices of both Douglas fir and hemlock, the increase being at least £3 a standard.

Lower prices are being quoted for Scandinavian fifties these days, though buying is limited. There is some solid ground for suggesting these grades will sell at lower prices by the autumn. No weakness has been seen in the joinery grades, and unsorted is still being

bought at £81 a standard f.o.b. for 7in redwood. There is to be a meeting of European importers and shippers of softwood in London on July 20, and it is understood that one of the topics for discussion will be the quality of joinery timber received in the post-war years, both in the standard of timber from smaller trees and in the conditioning that takes place before shipment. If satisfactory assurances can be given of improved quality, the importers may well be prepared to pay higher prices, though may demand in return a lower value on the bottom grade timbers. This line of thinking shows clearly the small chance of any reduction in joinery quality softwood in the near future.

Softwood stocks are good in the country, and purchasing has been at least as heavy as maximum demand. Well over 1,200,000 standards were under contract for 1954 delivery by the midway stage of this year. Consumption has not reached some of the optimistic expectations of the importers, so no shortages will arise.

In the hardwood market, the Government has refused import freedom for dollar hardwoods, and this decision will have the effect of strengthening other hardwood prices. At the moment, hardwood prices are generally low, and in most cases the prices asked by the shippers are higher than those paid for supplies now being sold. As an example, mahogany is almost a cheap timber these days, being priced well below its true value as a wood. From this it can be seen that the tendency in the hardwood market must be towards slightly higher prices.

Quite a lot of Timber Directorate stock is now coming on to the market to complete the sale of the balance of goods held by the Government, and recent sales have included dollar hardwoods and dollar plywoods, both without any restrictions on end use. Soon there will be another offer of softwood from the strategic reserve, probably in the region of 10,000 standards. All these sales have been on the open tender system, and in some cases large consumers have been able to buy direct.

After the disappointing fibre building board import quota fixed by the Government for the second half of this year (showing no improvement on the quantity permitted in the first six months), there is now the more welcome news that the importers will be allowed to buy extra supplies in this coming period to the value of about £250,000 f.o.b., which is an appreciable increase of some 24 per cent over the original allocation. There is a feeling in the trade that a further supplementary allocation may be made later in view of the high level of building board consumption, and the undoubted difficulties in the supply of hardboards and insulation boards to the building industry. Delivery delays for both British and imported boards are invariably quoted, but there should soon be an improvement in this position.

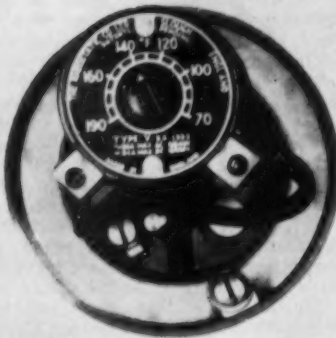
MOSAICS

SERVICES SPACE HEATING B 3/49



The new No. 3 A.I. Projector fire, by Callender Abbotts Foundry Cos. Ltd. of Falkirk, Stirlingshire, for Allied Ironfounders Ltd. The fire has two casings with an air space in between for convection, and a restrictable throat capable of fine adjustment. The fire may be installed in most 16 and 18in fireplaces without structural alterations. The fire is available in five colours and may be fitted for gas ignition.

SERVICES WATER HEATING B 6/24



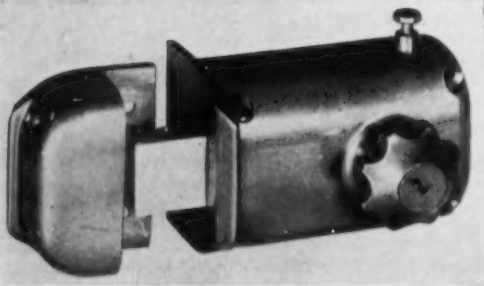
The new basic range of G.E.C. automatic immersion heaters with 2 1/2in BSPT heads have many features designed to aid the wireman. The heaters are made in 12, 18, 23, 27, and 30 inch lengths. Among the new easy-wiring features of these heaters are:—a short wire route inside the head, a plastic barrier which separates the phase and neutral wires and prevents the thermostat rotating within the head, a slot in the terminal cover which brings bare earth wires straight into the earth terminal, a bush made of resilient rubber, and a head projection of only 2 1/2in, a particularly useful feature when fitting heaters in cramped positions. From the General Electric Co. Ltd., Magnet House, Kingsway, W.C.2.

SERVICES SPACE HEATING B 3/50



The Tilley Kerosene (Paraffin) Convective Heater Model T.C. 549 by The Tilley Lamp Company Ltd., of 15 Sackville Street, London, W.1, stands 28in high, its heat output is 6,250 B.T.U.s at maximum heat, and it has a fuel capacity of one gallon. It is provided with an easily accessible heat control knob at the side, and the heat can be adjusted as required. It is silent in operation, has no wicks to trim and, unlike other Tilley models, needs no pumping. The legs are fitted with non-scratch rubber feet and it is finished with polychromatic stove enamel in gold. One point is that the container can be refilled whilst the heater is alight; the consumption of the Heater is as follows: 1 gallon in 24 hours at 6,250 B.T.U.s, 1 gallon in 48 hours at 3,125 B.T.U.s. The makers claim that the only replacement required in 12 months use is the asbestos ring wick.

FITTINGS DOOR FURNITURE C 3/11



Remploy, Limited, of 25 Buckingham Gate, S.W.1, have adapted the use of the constant mesh cam and trap principle, as used in general engineering, to a normal rim night latch giving it many advantages over the older types of locks. In the Remlock there are only three moving components and the result is therefore, a simple straight-forward engineering job. The lock has been designed to deliver the principal

means used to force entry into premises. The bolt has three positions:—(i) Fully withdrawn and held by use of a hold-back plunger. (ii) An intermediate position which the lock takes up on release from (i) with the bolt projecting half an inch. (iii) When the door is closed in the normal manner the bolt assumes a "fully shot" position and the projection is a full one inch, giving a positive deadlock, inherent in the cam and trap mechanism.

In order to overcome forcible entry effected by turning the inside knob of the lock, an extra safety device has been incorporated. If, upon leaving the premises, the key is inserted in the inside lock and given a quarter turn when the door is closed the internal knob is locked. The latch now has dual security as in (iii) (above) and in addition, cannot be opened from within until the key is given the necessary quarter turn. The retail price is 39s 6d.

INDUSTRIAL NOTES

● The Isle of Wight is likely to become self-dependent in brick production thanks to assistance from the Government's Revolving Fund for making short-term loans for schemes to increase production and productivity in industry.

The first loan in the Southern Region—a sum of £12,000—has been awarded to Island Brickworks, Ltd., of Newport, to facilitate the completion of the company's £100,000 scheme for up-to-date brickmaking plant capable of producing the 250,000 bricks a week which the Isle of Wight needs.

Island Bricks, Ltd., began operations some years prior to the Second World War with a small brickworks at Rookley, near Newport. The output was about 60,000-70,000 bricks a week and at the end of the war plans were prepared for the construction of modern plant to meet the whole of the Island's brick requirements.

In 1946 a start was made on the new plant adjoining the old brickworks and the building work was completed the following year.

No capital remained, however, for the purchase and installation of an automatic drying plant and the project was brought to a standstill.

Last August the Board of Trade announced the Government's programme for spending the counterpart funds derived from the nine million dollars Conditional Aid allotted to the United Kingdom under the United States Mutual Security Act 1952. This programme included the establishment of a revolving fund to provide short-term loans to the total value of £700,000 for industry and £300,000 for agriculture. Small- and medium-sized firms who could show that a loan would enable them or their customers to improve their efficiency in producing essential goods or exports were invited to apply for loans.

Island Bricks, Ltd., entered an application in which they were able to show how a small capital sum on a short-term loan would result in higher production, with proportionately less labour and in lower costs to the Island's building industry.

Approval was given and work on the development scheme began again. Now the new plant is undergoing its trials and in a few weeks it is likely to be in full production, and as a result the Isle of Wight will no longer need to import bricks from the mainland; Island builders will have access to quick and reliable supplies throughout the year; owing to the de-airing of the clay the quality of the bricks will be much improved; costs added by transport and shipping charges will be cut out; by doubling the labour force of 20, three to four times as many bricks will be produced; the old plant will no longer make bricks but will be available for possible adaptation for the production of roofing tiles, agricultural pipes and other clay products.

● Mr. Ernest Smith, A.I.O.B., has been elected to the Boards of Rawlings Bros., Ltd., and Styles (Contractors), Ltd., and has been appointed managing director of the latter company.

● The title of Goodenough Contractors' Machinery, Ltd., has been changed to: Goodenough Pumps, Ltd.

● Thorn Electrical Industries, Ltd., announce that the Midlands' Sales Office of the Atlas Lighting Division has moved to new premises at 23, Sheepcote Street, Birmingham, 15. Telephone: Birmingham Midland 5291.

Notes below give basic data of contracts open under locality and authority which are in bold type. References indicate: (a) type of work, (b) address for application. Where no town is stated in the

CONTRACT • NEWS •

OPEN

BUILDING

ACCRINGTON B.C. (a) New garage accommodation at the Street Lighting Department. (b) Borough Engineer, Town Hall. (c) £2. (e) July 24.

***BRIGHTON B.C.** (a) Block of 18 flats and 6 shops, St. George's Road. (b) Borough Engineer, 26-30, King's Road. (c) gns. (e) Aug. 4. See page 33.

BRISTOL C.C. (a) Crematorium, Canford Lane. (b) City Architect, Council House, College Green, 1. (c) 2gns. (e) Aug. 23.

BROMLEY B.C. (a) Construction of 3 public conveniences at following sites: (1) Queens Garden; (2) Hayes Lane, Hayes, and (3) Fox Lane, Keston. (b) Borough Engineer, Municipal Offices. (c) 2gns. (e) July 26.

BURY B.C. (a) Garages and alterations at Street Lighting Dept., Hacking Street. (b) Borough Engineer, Town Hall. (c) 2gns. (e) July 24.

CAMELFORD R.C. (a) Erection of following houses as 1954 Housing Programme: Block of 6 houses, Tintagel; block of 3, Delabole (Pengelly); 2, Delabole (Penmead); 2, St. Teath; 2, Camelford; and 2, Lesnewth. (b) Council's Surveyor, Council Offices. (c) 1gn for each contract. (e) July 28.

COVENTRY C.C. (a) Home for 42 aged people, Bell Green. (b) City Architect, Bull Yard. (c) 3gns. (d) July 24. (e) Sept. 1.

COWBRIDGE R.C. (a) 4 blocks of 2 houses, 4 blocks of 4 houses and 1 small unit children's home, with street works, Boverton Housing Site, Llantwit Major. (b) Council's Surveyor, 41, Eastgate Street. (e) July 30.

CREDITON U.C. (a) 2 blocks of 5 and 6 terrace houses, 3 blocks of 6, 8 and 5 terrace houses, 3 pairs of houses and a block of 4 houses, Butt Parks. (b) Messrs. F. W. Beech and E. Curnow Cooke, 15, Dix's Field, Exeter. (c) 2gns. (e) July 29.

DRAYTON R.C. (a) (1) 22 dwellings at Hodnet; (2) 4 dwellings at Moreton Wood; (3) 2 dwellings at Willaston Road, Calverhall; (4) extensions to roads and sewers, Hodnet. (b) Messrs. Hind and Brown, District Bank Chambers, Hanley, Stoke-on-Trent. (c) 2gns. (e) July 23.

DURHAM C.C. (a) 6 houses, Giles-gate. (b) City Engineer, Town Hall. (c) 2gns. (e) July 26.

EAST SUFFOLK C.C. (a) Conversion of "Hillcroft," Violet Hill, Stowmarket, into a clinic and ambulance station. (b) County Architect, County Hall, Ipswich. (c) 2gns. (d) July 19. (e) Aug. 5.

address it is the same as the locality given in the heading, (c) deposit, (d) last date for application, (e) last date and time for submission of tenders. Full details of contracts marked ★ are given in the advertisement section

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EIRE—DUBLIN C.C. (a) 204 houses, Finglas West Housing Area. (b) Housing Architect, 6, Mountjoy Square. (c) 15gns. (e) July 26.

ELLESMERE PORT U.C. (a) 18 houses, North Whitby Estate, Part 1 (Romiley Road). (b) Engineer and Surveyor, Queen Street. (c) 3gns. (e) July 27.

GLOUCESTER R.C. (a) 26 flats in 3 blocks, Parklands Site, School Lane, Quedgeley. (b) Messrs. Vale and Kingsford, 25, Aldgate Street.

HAMPSHIRE C.C. (a) Erection of following schools (in traditional construction): (1) Fareham Secondary Grammar School; (2) Lymington Secondary Modern School; (in prefabricated construction): (3) Farnborough Fox Lane Junior School; (4) Hythe Junior School. (b) County Architect, The Castle, Winchester. (d) July 31.

HEMEL HEMPSTEAD B.C. (a) block of 14 garages, Belswains Farm Estate. (b) Borough Engineer, Market Square. (c) Aug. 2.

LONDON—MERTON AND MORDEN U.C. (a) First section of sports pavilion, comprising kitchen, 3 changing rooms and ancillary work, King George's Field, Morden. (b) Clerk of the Council, Morden Hall, S.W.19, immediately. (c) 2gns. (e) Aug. 3.

LUTON B.C. (a) (1) 8 old people's dwellings in 2 blocks of 4, with ancillary buildings, Park Street; (2) 4 old people's dwellings in 1 block, Yeovil Road. (b) Borough Engineer, Town Hall. (c) 2gns each contract. (e) Aug. 3.

MONMOUTHSHIRE C.C. (a) Alterations and extensions at Home for Aged, Cwymbran House, Pontnewydd. (b) County Architect, Queen's Hill, Newport. (c) 2gns. (e) July 23.

NEWCASTLE REGIONAL HOSPITAL BOARD. (a) Alterations and improvements to existing plastic surgery theatre units, Shotley Bridge Hospital. (b) Secretary, "Dunira," Osborne Road, Newcastle-upon-Tyne, 2. (d) July 26.

NEWCASTLE-UPON-TYNE C.C. (a) Alterations and adaptations in conversion of "Hermiston," Jesmond Park West, into a home for aged persons. (b) City Architect, 18, Cloth Market. (c) July 26.

N. IRELAND—BELFAST C.C. (a) Conversion of premises at 182, Ormeau Road, into a bakery school. (b) Education Architect, 40, Academy Street. (c) £2. (e) Aug. 5.

N. IRELAND—CABRA (CO. DOWN). (a) Renovations and erection of a new sanitary block at Cabra Primary School, Co. Down. (b) Kenneth J. Kenny, 25, Hill Street, Newry. (c) £2. (e) Aug. 4.

N. IRELAND—COOKSTOWN. (a) Erection of an extension (17,000 sq ft in area) to factory premises at Burn Road, Cookstown, Co. Tyrone. (b) Messrs. Cosgrove and Rooney, 2, Molesworth Street, Cookstown. (c) 5gns. (e) July 30.

N. IRELAND—MAGHERAFELT R.C. (a) 10 dwellings at Draperstown. (b) Council's Clerk, Council Offices. (c) 3gns. (e) July 29.

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N. IRELAND GOVERNMENT. (a) (1) Automatic Telephone Exchange. (2) Inland Revenue offices (one contract), Carrickblacker Road, Portadown, Co. Armagh. (b) Ministry (Room 103), Law Courts Building, May Street, Belfast. (c) £5. (e) Aug. 9.

NORTH RIDING C.C. (a) Alterations to Topcliffe Aerodrome County School, near Thirsk. (b) County Architect, County Hall, Northallerton. (e) July 23.

NORFOLK C.C. (a) (1) 3 classrooms, cloakrooms, offices and site works, Thetford St. Mary New Primary School; (2) 4 classrooms, cloakrooms, offices and site works, Watton New Secondary Modern School. (b) Chief Education Officer, County Education Offices, Stracey Road, Norwich. (d) July 21.

NORWICH C.C. (a) Block of 3 classrooms at City of Norwich School. (b) City Architect, City Hall. (c) 2gns. (e) July 23.

PETERBOROUGH C.C. (a) 48 houses, Eastfield Estate. (b) City Engineer, Town Hall. (c) 2gns. (e) July 30.

RUISLIP-NORTHWOOD U.C. (a) 34 semi-detached houses and 18 single-storey Eventide homes, South Ruislip. (b) Engineer and Surveyor, Council Offices, Oaklands Gate, Northwood, Middx. (d) July 19. (e) Aug. 16.

SOMERSET C.C. (a) Churchill Secondary Modern School (360 places) and Williton Secondary Modern School (360 places). (b) County Architect, Park Street, Taunton. (c) 2gns each contract. (d) July 19.

SOUTHBOROUGH U.C. (a) Block of 4 flats, Great Brooms Road, High Brooms, Southborough. (b) Messrs. Howes and Jackson, 1, Verulam Buildings, Grays Inn, London, W.C.1. (c) 2gns. (e) July 26.

ST. AUSTELL R.C. (a) 16 houses, Edgcombe Terrace, Roche, together with construction of short access road and footpath. (b) Engineer and Surveyor, "Trevarna," 12, Carlyon Road. (c) 2gns. (e) July 28.

SCOTLAND—HAWICK B.C. (a) 58 houses, Burnfoot and Burnhead Housing Scheme, North-West Section development 5; all trades. (b) Burgh Surveyor, Hawick. (e) July 22.

SCOTLAND—INVERNESS C.C. (a) 34 houses, Drumnadrochit Housing Scheme, all trades. (b) County Architect, The Castle, Inverness. (e) July 24.

SCOTLAND—MUSSELBURGH B.C. (a) 3-storey block of 23 flatted houses, New Street-Bush Street Clearance Areas. (b) Burgh Surveyor, Municipal Offices. (d) July 26. (e) Aug. 23.

SCOTLAND—WEST LOTHIAN C.C. (a) New junior secondary R.C. school at Bo'ness; all trades. (b) J. P. Storrier, 38, York Place, Edinburgh, 1; immediately.



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AUTHORITY.** (a) Recreation room,
dining room, kitchen, stores, etc., in fire
stations at Mildenhall and Debenham.
(b) Architect to the Authority, County
Hall, Ipswich. (c) 2gns. each contract.
(d) July 26. (e) Aug. 24.

WALLINGFORD R.C. (a) 3-storey
building, comprising 4 shops with 4 flats
over, Newlands Estate, Didcot. (b)
Messrs. Beecher and Stamford, 14, Park
End Street, Oxford. (c) 2gns. (d) July
19. (e) Aug. 16.

WEST RIDING C.C. (a) Caretaker's
house on site of Rothwell Secondary
Modern School. (b) County Architect,
"Bishopgarth," Westfield Road, Wake-
field. (c) 1gn. (e) July 26.

WHITBY R.C. (a) Block of 4 houses,
Stainsacre. (b) Engineer and Surveyor,
Council Chambers, "Eskholme," Whitby.
(c) 2gns cheque payable to Council. (e)
July 26.

WINCHESTER C.C. (a) 44 dwellings,
Weeke Manor Estate. (b) Messrs. A. H.
Wilson and Partners, 8, Storey's Gate,
London, S.W.1. (c) 2gns. (e) July 21.

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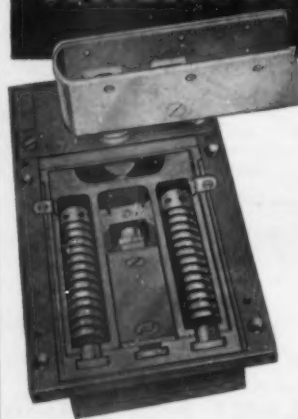
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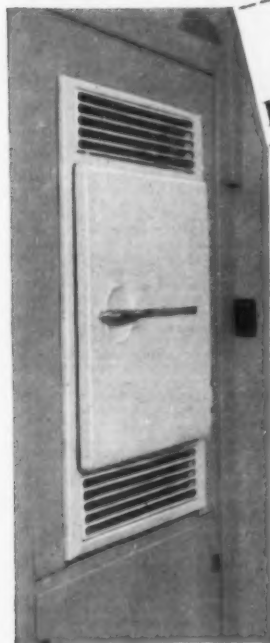
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FOLEY HOUSE ESTATE, MAIDSTONE. Built for New Thornhill Estates Limited by Henry N. Smith of Maidstone. The architect is Mr. H. Antony Clark, F.R.I.B.A., F.I.A.R.B., of Messrs. F. C. Roberts and Partners.

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APPOINTMENTS

The engagement of persons answering these advertisements must be made through the local office of the Ministry of Labour and National Service, etc., if the applicant is a man aged 18-64 or a woman aged 18-59 inclusive, unless he or she or the employer is exempted from the provisions of The Notification of Vacancies Order 1952.

LONDON COUNTY COUNCIL.

ARCHITECT'S DEPARTMENT.

ARCHITECT (Grade II) required for Historic Buildings Section with knowledge of the history of architecture in England and interested in preservation of buildings of architectural and historic significance. Salary up to £1,071. Application forms and particulars returnable by 20th August, from the Architect (AR/EK/HB/4), County Hall, S.E.1. (917.) [8133]

BOROUGH OF WALTHAMSTOW.

COMMITTEE FOR EDUCATION.

ARCHITECT'S DEPARTMENT

APPLICATIONS are invited for the following permanent appointment in the office of the Architect to the Committee, Mr. Frank H. Heaven, A.R.I.B.A., A.R.I.C.S.

ARCHITECTURAL ASSISTANT at a salary of £580 rising by increments of £15 to £625 per annum (Grade A.P.T. IV of National Scales). In addition a London weighting of £30 if 25 years of age and over, or £20 per annum age 21 to 25 is payable.

Form of application should be obtained from and returned to the Borough Education Officer, Town Hall, Forest Road, Walthamstow, E.17, within three weeks of the appearance of this notice. [8151]

WEST ASHFORD RURAL DISTRICT COUNCIL.

(Population 10,000.)

APPOINTMENT OF ARCHITECT AND SURVEYOR TO THE COUNCIL.

SALARY scale £750×£50—£850. Position of entry on Scale to be determined by agreement. A slightly higher scale may be considered if the successful candidate is competent to prepare Bills of Quantity. Four weeks paid leave per annum. Travelling allowance. Loan for purchase of car considered. Experience in construction of housing estates essential. Knowledge of small drainage schemes and reconstruction of old houses an advantage. **LOCAL GOVERNMENT EXPERIENCE NOT ESSENTIAL.** House available for married man.

The district lies in a pleasant part of Kent and the post offers a good opportunity for the successful candidate to acquire valuable experience.

Forms of application and particulars of appointment can be obtained from the Clerk of the Council, 2, Elwick Road, Ashford, Kent. Closing date for applications—31st July, 1954. [8152]

BOROUGH OF SHREWSBURY.

APPOINTMENT OF ARCHITECTURAL ASSISTANT.

APPLICATIONS are invited for the appointment of **ARCHITECTURAL ASSISTANT** on the permanent staff of the Borough Surveyor. Salary will be in accordance with Grade IV, £580—£625 and the person appointed will be required to pass a medical examination.

Applications stating age, qualifications and experience, together with the names and addresses of two referees should be sent to the Borough Surveyor, Guildhall, Shrewsbury, not later than the 24th July, 1954.

S. R. H. LOXTON,
Town Clerk.

Guildhall, Shrewsbury.
7th July, 1954. [8155]

APPOINTMENTS—contd.

NEW TOWN OF CWMBRAN (MONMOUTHSHIRE).

CLERK OF WORKS.

APPLICATIONS are invited for the above Superannuable post of **CLERK OF WORKS** in the Chief Architect's Department, to supervise the erection of permanent Houses and other Buildings, including setting out, levelling, measuring up and keeping records.

Commencing salary will be £525 rising by increments of £25 to £575 per annum.

Housing accommodation will be made available in suitable cases or otherwise lodging expenses in accordance with the Corporation's scale will be allowed for a limited period to married men.

Applications, which should state age, experience, present and former employment (with salaries) together with the names and addresses of two referees, should reach the undersigned by not later than 21st July, 1954.

J. C. P. WEST, A.R.I.B.A., A.M.T.P.I.,
Chief Architect.

Victoria Street, Cwmbran, Mon. [8129]

ARCHITECTURAL ASSISTANT, Grade A.P.T. II, III or IV (£520 to £565, £550, £595, or £580 to £625; plus London Weighting of £20 or £30 according to age), N.J.C. conditions of service. Salary according to qualifications and experience. Write to Borough Engineer (Dept. ABN), Town Hall, Tottenham, N.15, for application form and further particulars. Completed applications to be delivered by Tuesday, 27th July, 1954. [8150]

WORTLEY RURAL DISTRICT COUNCIL.

(Population 45,240. Rateable Value £256,314).

APPLICATIONS are invited for the following appointment in the Engineer and Surveyor's Department.

ASSISTANT ARCHITECT. Salary in accordance with A.P.T. V of the National Scales (£620—£670). Applicants should be Members by examination of the R.I.B.A., preferably with municipal experience.

Housing accommodation is offered. Forms of application may be obtained from the undersigned to whom applications must be delivered not later than 29th July, 1954.

ADRIAN M. KELLY,
Clerk.

Council Offices, Grenoside, Sheffield. [8131]

LEYLAND URBAN DISTRICT COUNCIL.

SURVEYOR'S DEPARTMENT.

ASSISTANT ARCHITECT, A.P.T. GRADE V.

APPLICATIONS are invited for the above Post.

Applicants should hold an appropriate architectural qualification and be experienced in the preparation of working drawings and specifications for housing and other Municipal work.

The appointment will be subject to the National Joint Council Conditions of Service, to the passing of a medical examination, to the provisions of the Local Government Superannuation Act, 1937, and to termination by one month's notice in writing by either party. Canvassing is prohibited. Candidates must disclose whether to their knowledge they are related to any member or Senior Officer of the Council.

Applications, stating full name and address, date of birth, full details of education and training, qualifications held, past and present posts and salary, notice required to terminate present employment and details of previous experience, together with copies of two recent testimonials, should be sent in suitably endorsed envelopes so as to reach me not later than July 31st, 1954.

T. K. CLAYTON,
Clerk of the Council.

Council Offices, LEYLAND, Lancs.
6th July, 1954. [8134]

APPOINTMENTS—contd.

HER MAJESTY'S COLONIAL SERVICE.

ARCHITECTS, HOUSING AND PLANNING DEPARTMENT.

BRITISH GUIANA.

IN connection with a £2½ million housing programme the Government of British Guiana requires two architects for work in the Housing and Planning Department in that country under the direction of a Chief Architect and a Planning Officer.

The architects' duties will be primarily to design and supervise low-cost housing schemes, including houses built by "self-help" groups under Government aid and other Government projects of a general architectural and planning nature. The persons appointed will be required to travel extensively in rural areas and will be paid travelling and subsistence allowance in accordance with the local regulations applicable to pensionable officers and others of similar status when travelling on official duty.

The posts offer considerable scope to architects with imagination, enthusiasm and drive as well as an interest in the social problems involved.

Applicants should be Associates of the Royal Institute of British Architects or hold an equivalent qualification. Engagement is on contract for two years with the possibility of renewal for one or more years. The salary offered is £1,000 per annum plus a temporary cost-of-living allowance of £62 10s per annum, and on the satisfactory conclusion of his period of service the officer will be paid a gratuity calculated at the rate of 22½ per cent of his basic salary for each completed period of three months' service including approved leave. A revision of salaries in the Public Service of the colony is to be undertaken in the immediate future. Vacation leave will be granted at the rate of five days for each completed month of resident service up to a maximum of six months, subject to completion of a minimum tour of service of two years. Free passages to British Guiana will be provided for the persons selected, their wives and up to three children each, and back to the United Kingdom on the satisfactory completion of their contracts. The architects are urgently required and the persons selected will be requested to take up their duties immediately.

Apply in writing to the Director of Recruitment, Colonial Office, Great Smith Street, London, S.W.1, giving briefly age, qualifications and experience. Mention the reference number BCD.160/30/01. [8135]

CONSETT URBAN DISTRICT COUNCIL.

APPOINTMENT OF ARCHITECTURAL ASSISTANT.

APPLICATIONS are invited for the above permanent appointment in the Surveyor's Department at a salary in accordance with A.P.T. Grade VII (£735—£810 per annum).

Candidates should hold a recognised architectural qualification and should have had experience in housing work with a Local Authority.

The appointment will be subject to the National Conditions, the provisions of the Local Government Superannuation Act, 1937, one month's notice on either side and the passing of a medical examination. The Council will assist the successful applicant in obtaining housing accommodation, if required.

Applications in envelopes endorsed "Architectural Assistant," giving details of age, qualifications and experience, together with the names and addresses of three persons to whom reference may be made, are to be addressed and delivered to the undersigned not later than Saturday, 24th July, 1954.

Candidates must declare their relationship, if any, with any member or senior officer of the Council.

T. W. BELL,
Clerk of the Council.

Council Offices, Medomsley Road, Consett, Co. Durham.
7th July, 1954. [8141]

APPOINTMENTS—contd.**CONSETT URBAN DISTRICT COUNCIL.****APPOINTMENT OF JUNIOR ARCHITECTURAL ASSISTANT.**

APPLICATIONS are invited for the above permanent appointment in the Building and Engineering Department at a salary in accordance with A.P.T.II (£520-£565 per annum).

Candidates should have had training or experience with Local Authority work.

The appointment will be subject to the National Conditions, the provisions of the Local Government Superannuation Act, 1937, one month's notice on either side and the passing of a medical examination. The Council will assist the successful applicant in obtaining housing accommodation, if required.

Applications in envelopes endorsed "Junior Architectural Assistant," giving details of age, qualifications and experience, together with the names and addresses of three persons to whom reference may be made, are to be addressed and delivered to the undersigned not later than Saturday, 24th July, 1954.

Candidates must declare their relationship, if any, with any member or senior official of the Council.

T. W. BELL,
Clerk of the Council.
Council Offices, Medomsley Road,
Consett, Co. Durham.
7th July, 1954. [8142]

THE UNIVERSITY OF LIVERPOOL.

APPLICATIONS are invited for the post of LECTURER AND STUDIO INSTRUCTOR in the School of Architecture. The initial salary will be within the range £550-£850, according to qualifications and experience.

Candidates will be expected to have had several years of experience in practice, and preference will be given to those with special knowledge of building science and construction, or with interest in pursuing architectural research in historical, social or structural fields.

Applications, stating age, qualifications and experience, together with the names of three referees, should be received not later than July 31, 1954, by the undersigned, from whom further particulars may be obtained.

STANLEY DUMBELL,
Registrar.
[8139]

LONDON COUNTY COUNCIL.**ARCHITECT'S DEPARTMENT.**

VACANCIES for ARCHITECTS in Schools and Housing Divisions. Salary to £721. Particulars and application forms from Architect (AR/EK/A/3), County Hall, S.E.1 (374). [0141]

KUMASI COLLEGE (GOLD COAST COLLEGE OF TECHNOLOGY, SCIENCE AND ARTS)

APPLICATIONS are invited for the following posts:—
SENIOR LECTURER in CIVIL ENGINEERING.

SENIOR LECTURER in ELECTRICAL ENGINEERING.

LECTURER (Grade A) in ELECTRICAL ENGINEERING (Radio and Telecommunications).

Teaching will be up to degree standard. Qualifications: Degree and membership of appropriate professional engineering Institution; industrial and/or teaching experience desirable.

SENIOR LECTURER in BUILDING, to teach senior staff in the building industry and to carry out research on building materials and methods in W. Africa. Qualifications: L.I.O.B. or H.N.C. in Building, experience in building industry and in teaching building subjects.

LECTURER (Grade A) in WORKSHOP PRACTICE, to teach students in professional engineering and in technicians courses. Qualifications: H.N.C. in Production Engineering, corporate membership of I.P.E. and practical experience in responsible post in engineering works.

Now in the early stages of development, the College is autonomous, complementary in function to the University College of the Gold Coast, and of comparable status. It has at present about 600 resident students and will eventually accommodate up to 2,000.

Salary scales: Senior Lecturers, £1,400-£1,850 p.a. Lecturers (Grade A), £850-£1,560 p.a.

Initial salary according to experience. Posts are pensionable, but temporary appointments carrying gratuity and 10 per cent higher salary could be made if preferred. Partly furnished houses provided, rent £60-£120 p.a., according to salary. Free first-class passages for persons appointed, their wives and up to three children under 13. Generous home leave, normally annual, on full salary.

Write for further information to Secretary, Advisory Committee on Colonial Colleges, 1, Gordon Square, London, W.C.1. Closing date for applications (five copies), 10th August, 1954. [8143]

APPOINTMENTS—contd.**EDINBURGH COLLEGE OF ART**

APPLICATIONS are invited for the post of Assistant Instructor in BUILDING CONSTRUCTION in the SCHOOL OF ARCHITECTURE, salary scale £690 × £30 × £990 per annum—commencing salary will be determined according to qualifications and experience.

Applications are also invited for the post of Assistant Instructor in the SCHOOL OF ARCHITECTURE, salary scale £690 × £30 × £990 per annum—commencing salary will be determined according to qualifications and experience.

Forms of application and conditions of appointment can be obtained from the Secretary, Edinburgh College of Art, Edinburgh, 3, and should be returned to him not later than 30th July, 1954. [8144]

CONTRACTS**EASTHAMPTON RURAL DISTRICT COUNCIL.****MODERNIZATION OF TWELVE COUNCIL HOUSES, HAYLEY GREEN, WARFIELD.**

THE Council hereby invite tenders for the above work which comprises provision of new hot water and background heating system, provision of kitchen fittings, alterations to form bathroom, and the construction of brick outbuilding at each of these twelve houses, together with complete redecoration.

A copy of the Specification, Form of Tender and Drawings, can be obtained from the Engineer & Surveyor to the Council, Council Offices, Bracknell, on payment of a deposit of one guinea, returnable on receipt of a bona fide tender not subsequently withdrawn and the return of all documents loaned for the purpose of tendering.

Tenders must be submitted in the envelope provided with the tendering documents with the addition of no mark or sign to indicate the person tendering, addressed to the undersigned to be received not later than first post on Saturday, 7th August, 1954.

D. H. M. SAUNDERS,
Clerk of the Council.
Council Offices,
Bracknell,
Berks. [8146]

COUNTY BOROUGH OF BRIGHTON

TENDERS are invited for:—

THE ERECTION OF A BLOCK OF 18 FLATS AND 6 SHOPS, ST. GEORGE'S ROAD, BRIGHTON.

Bills of Quantities and forms of tender may be obtained from the Borough Engineer & Surveyor, 26/30, King's Road, Brighton, on or after Friday, 16th July, 1954, on receipt of a returnable deposit of £2 2s.

Tenders are to be delivered to the Town Clerk in plain sealed envelope not later than 12 noon on Wednesday, 4th August, 1954. W. O. DODD,
Town Clerk. [8145]

MISCELLANEOUS SECTION

RATE: 1/6d. per line, minimum 3/-, average line 6 words. Each paragraph charged separately.

BOX NOS. add 2 words plus 1/- for registration and forwarding replies which should be addressed c/o, "The Architect & Building News," Dorset House, Stamford Street, London, S.E.1.

PRESS DAY Monday. Remittances payable to Hiffe & Sons Ltd., Dorset House, Stamford Street, London, S.E.1.

No responsibility accepted for errors.

ARCHITECTURAL APPOINTMENTS VACANT

The engagement of persons answering these advertisements must be made through the local office of the Ministry of Labour and National Service, etc., if the applicant is a man aged 18-64 or a woman aged 18-59 inclusive, unless he or she or the employer is exempted from the provisions of The Notification of Vacancies Order 1952.

ARCHITECTURAL Assistants required at once. Senior and Inter. Standard. For housing schemes and office buildings.—Liberty 8181. [8138]

ARCHITECTURAL APPOINTMENTS VACANT—contd.

THREE Assistant Architects required in London Office for preparation of working drawings and site supervision of College buildings. Salaries according to experience.—Write full particulars, Box 6424. [8118]

NORTHERN IRELAND Office requires a chief assistant to take charge of school building section, interest in design and contractual experience essential; salary from £800 p.a.—Box 6579. [8148]

ARCHITECTS with degree and with civil engineering inclinations are invited to send full particulars and in return will receive information about an attractive appointment.—Box 6287. [8096]

WANTED, qualified assistant—R.I.B.A. Finals—age 25/30, for Bournemouth office, must carry out contracts from sketches to final accounts; reply stating salary required and when free.—Box 6580. [8149]

ARCHITECTS' Senior Assistants required for private office in London, E.C., with widely varied practice; must be Associate R.I.B.A. and preferably with not less than three years' practical office experience; reply giving age, full particulars of qualifications and experience, and stating salary required.—Box 6534. [8130]

FOUR Architectural Assistants required for office in London area, preferably up to or over Intermediate R.I.B.A. Standard with experience in industrial and commercial work and with knowledge of surveying; salary about £500 p.a. according to qualifications and experience.—Apply, giving details, to Box 6535. [8132]

UNIVERSITY OF CAMBRIDGE, Department of Estate Management require the services of a Junior Architectural Assistant. Salary according to age and experience. Wide variety of interesting work, giving opportunity of valuable experience towards qualifications. Applicants should have completed National Service and have a sound knowledge of working drawings, details and surveys.—Reply, giving full details, to Secretary, 74, Trumpington St., Cambridge. [8140]

SITUATIONS VACANT

JUNIOR surveyor-draftsman for office of builder of high-class detached houses in Bromley area; applicant would be required to work under direction of managing director.—Details to Box 6578. [8147]

BUILDING draughtsman with knowledge of timber structures required for work in design office at Kew Bridge; also a tracer with at least one year's experience; applications for both posts stating age, experience and salary required to Box 6581. [8153]

DRAFTSMAN required by light chemical manufacturing company in North-west Kent for detailing factory buildings of all types. Some experience in taking off quantities advantageous. Please give brief details of education and experience, also state age, present salary and whether married.—Box 6536. [8137]

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REINFORCEMENT Service offered to authorities, architects, contractors. Our Dept., of DESIGN for detailed working drawings

AND bending lists. We can also

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